

CAROLYN WILLEKES

THE HORSE IN THE ANCIENT WORLD

From Bucephalus to the Hippodrome



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CAROLYN WILLEKES holds degrees in classical studies from the University of Calgary and the University of Guelph. Her recent publications include 'Horse Racing and Chariot Racing', co-authored with Sinclair Bell, in *The Oxford Handbook of Animals in Classical Thought and Life* (2013), and 'Equine Aspects of Alexander the Great's Macedonian Cavalry', in *Greece, Macedon and Persia: Studies in Social, Political and Military History* (2015).

'The Horse in the Ancient World is aimed at a broad audience. Its unusual strength lies in Carolyn Willekes' attractive combination of academic expertise with considerable practical experience. This has produced a work of sound scholarship which is also accessible to the general reader. It should be an invaluable companion to classical specialists and equine enthusiasts alike; it is of good quality, and fills a gap in the current literature.'

IAIN G. SPENCE, former Associate Professor of Classics
and Ancient History, University of New England,
New South Wales, author of *The Cavalry of Classical Greece:
A Social and Military History*

'Carolyn Willekes' book is a most welcome addition to a growing list of publications devoted to ancient equestrian and cavalry studies. It is a richly informative work, giving ample evidence of the author's long personal experience with horses and equestrian activity. Throughout her book, Willekes stresses the close relationship between humans and horses since the domestication of the latter in the fourth millennium BCE. Her chapters on the evolution of the horse and horse riding, and her clear categorization of horse types, are clear, concise and persuasive. Willekes' book should appeal to an audience far broader than just horse enthusiasts: she covers the use of the horse in war; in art (for example, offering a provocative interpretation of the Parthenon frieze); and in sports. She also includes lengthy translated excerpts of ancient Greek and Roman writers on what we would call "equine conformation". All in all, this is an enjoyable, well-researched and nicely balanced introduction to the subject.'

GLENN R. BUGH, Associate Professor of Classical Studies and
Byzantine History, Virginia Tech, author of
The Horsemen of Athens and editor of
The Cambridge Companion to the Hellenistic World

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From Bucephalus to the Hippodrome

CAROLYN WILLEKES

I.B. TAURIS

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For my parents: gratias tibi ago

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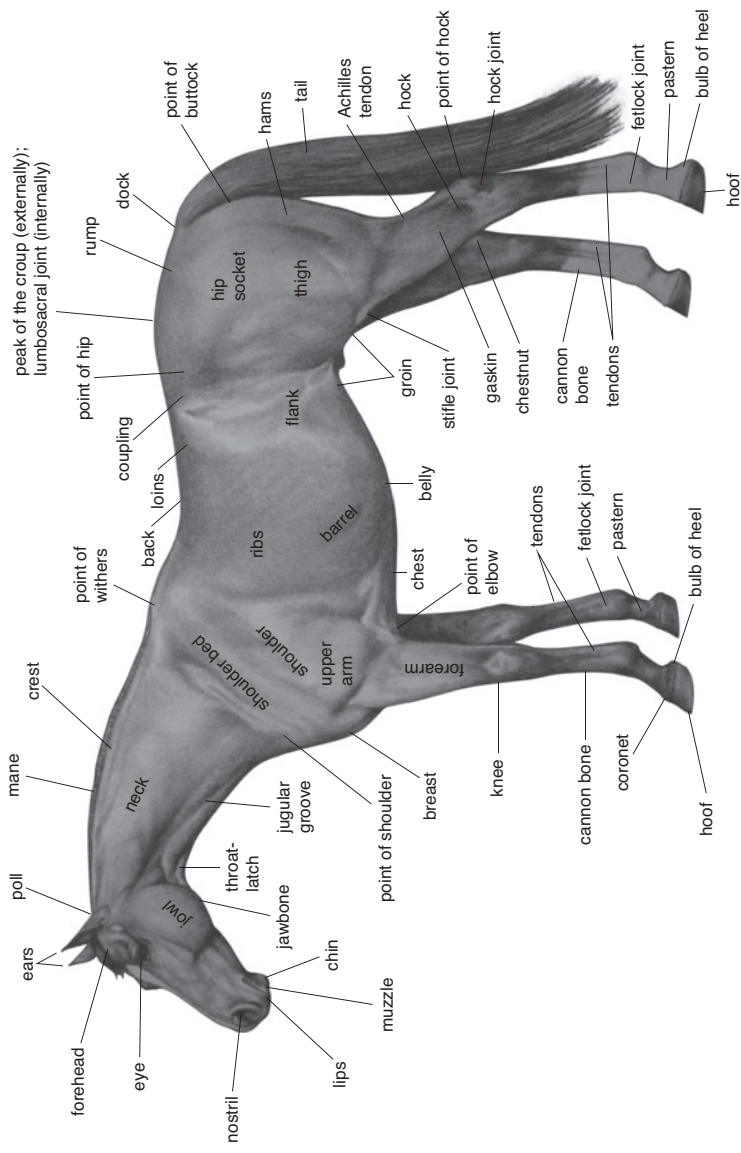


FIGURE 0.1 The anatomy of the horse.

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The horse is a remarkable animal and we owe him a great debt. Although dogs are traditionally considered to be our best friends, it is upon the back of a horse that human history was written. I have been blessed with the opportunity to meet extraordinary horsemen from all over the world – thank you for sharing your knowledge and love of all things *Equus* with me. I am ever so grateful to the many horses in my life. They are not only the inspiration for my work, but are also my companions, mentors, therapists and confidants.

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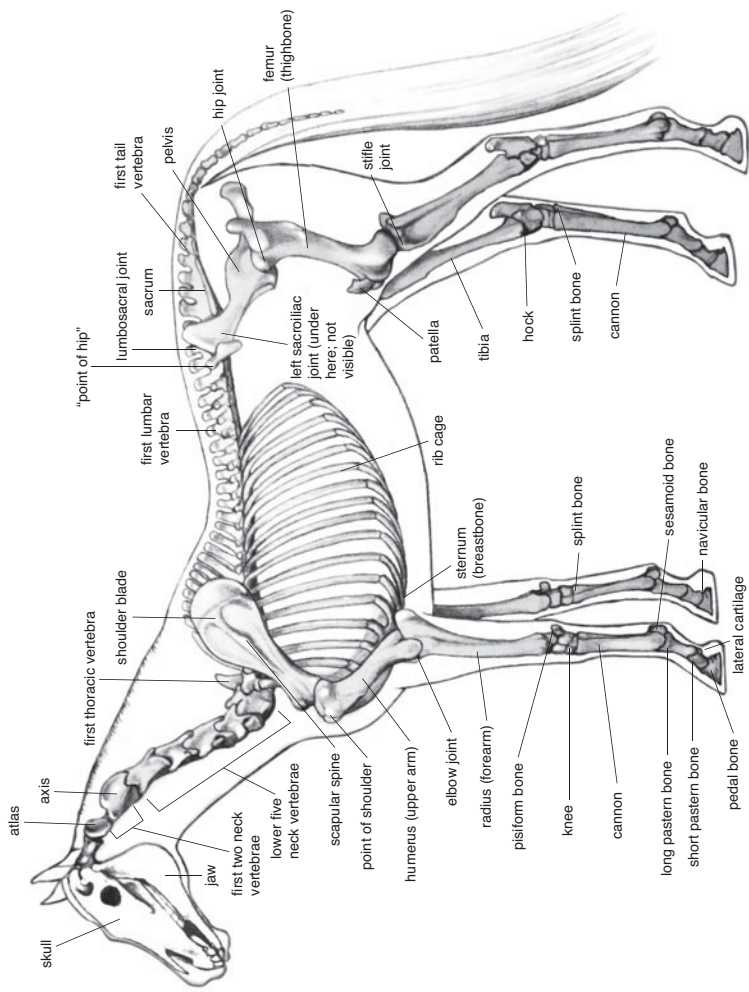


FIGURE 0.2 The equine skeleton.

INTRODUCTION

HORSES AND HUMANS

The horse evokes powerful symbolism. He represents wealth, prestige and conquest. His image graces the emblems of high-octane sports cars like Ferrari, Porsche and Mustang. Royal families own stables full of priceless, purebred horses often found competing on the polo field, racetrack and in the Olympic disciplines of dressage, eventing and show jumping. Horses can be found with starring roles in celebrations and memorials. Indeed, it is almost impossible to imagine a world without the horse. Budiansky, however, in his book *The Nature of Horses* has a chapter entitled 'The Improbability of the Horse' in which he argues that the horse would have gone extinct had it not been domesticated.¹ To most people this might seem a rather far-fetched idea. After all, there are millions of horses all over the world today. In fact, there are more horses on the planet now than there ever have been before. Budiansky, however, is not off the mark with his assessment. One need only look to the non-domesticated relatives of the horse to see the truth in his statement. The quagga, tarpan and Syrian wild ass are extinct; Grevy's zebra is a threatened species; the Mountain zebra, Persian onager and Asiatic wild asses are endangered. The Przewalski horse went extinct in the wild in the 1960s and survived only in zoos through intensive conservation practices. Although the Przewalski horse has been re-released onto reserves in Mongolia, the species is still critically endangered. History makes it clear, then, that domestic equids have thrived while their wild counterparts have suffered (Fig. 0.3).



FIGURE 0.3 An onager hunt as depicted on a mosaic from Henchir Toungar, c.240 CE.

The domestication of the horse sometime in the fourth millennium BCE altered the future not only of equines, but of humans as well. The horse turned out to be a pretty useful animal.

Cultural, technological and military evolution would have been much slower without them as humans plodded along on donkey-back or in their ox-carts. It is safe to say that the horse very quickly entrenched himself as an essential part of the human world. To understand how firmly equines have rooted themselves in the human psyche we need only look at the history of the horse after the industrial revolution. With the increasing mechanization of transportation, warfare and labour, it was commonly thought that the horse would disappear as he no longer served any practical function and was, at the end of the day, expensive to maintain. The horse remained resilient and re-invented himself. No longer a 'practical' tool, he became an athlete, companion and pet.² Horses competing at the top echelons of their sports can be worth millions of dollars and live lives of pampered luxury attended by a retinue of grooms, veterinarians, massage therapists, physiotherapists and chiropractors. Then there is the chubby, backyard pony – part lawnmower, babysitter, therapist and teacher. One might be tempted to assume that the horse–human relationship – this affectionate, personal bond between equine and human – is a relatively modern development. If we turn to the historical record, however, it becomes clear that this emotional attachment is nothing new.

Human fixation or fascination with the horse appears in full force with the Paleolithic cave art from southern France, northern Spain and northern Portugal. These dramatic, often larger than life, murals are found deep inside labyrinthine passages at places like Altamira, Lascaux and Chauvet. They depict a variety of animals including bison, deer, rhinoceroses, mammoths, lions and, of course, horses. This veritable zoo is made up of *wild* animals. The only representations of human–animal interactions are found in hunting contexts. Yet, even in this period the horse is the most prevalent species on display, appearing with a much greater frequency than any other animal. If we keep in mind that these are wild horses with no apparent connection to humans aside from serving as a food source, how do we account for their frequent and often lifelike appearance in art? Why were prehistoric humans so fascinated with the horse (Fig. 0.4)?

This question becomes more convoluted when we introduce domestication. Given the human fascination with the horses for

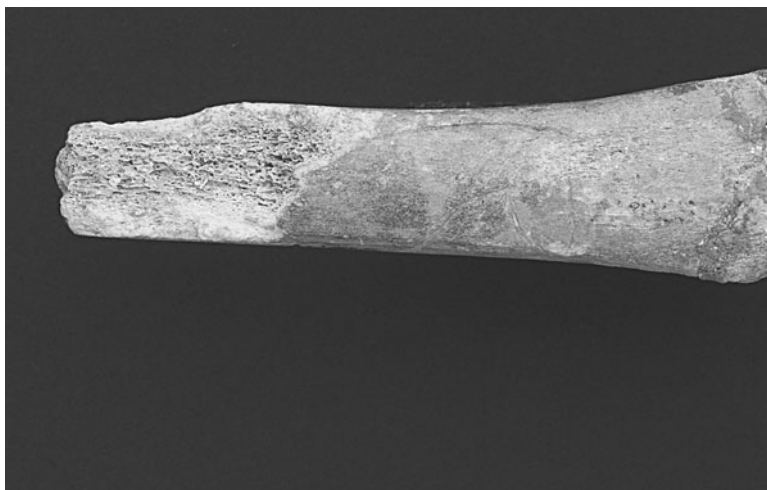


FIGURE 0.4 Upper Palaeolithic 'bâton percé' with a horse-head engraving, c.15,000 BCE.

over 20,000 years, we might expect it to have been one of the earliest domesticated mammals. This is not the case. The horse was domesticated long after dogs, cattle, goats, sheep and pigs. Recent evidence from the Botai culture of Kazakhstan suggests that domestication occurred around 3500 BCE. Even after domestication the horse continued to serve as a food source; indeed this was the reason for his domestication in the first place. No one can say when exactly someone first realized he could climb onto the back of a horse and harness equine power for his own advantage, but once it happened the horse–human relationship changed irrevocably. The horse enabled humans to move beyond the boundaries of their valleys and villages and into the wider world. He allowed cultures to interact with each other and for trade to flourish. 'High speed' communication systems developed and warfare began to take place on a much vaster scale. Humans quickly came to rely upon the horse for numerous tasks; so much so that it no longer seemed possible for a society to function without them. Once a culture was introduced to the horse, the animal very quickly took up an essential role in the fabric of their daily lives. This dependence necessitated a shift in the horse–human relationship. No longer was the horse simply a source

of nourishment. This new relationship cannot be called one of master and servant. In fact, the ancient evidence does not often convey the idea of submission or servitude in the horse; instead it seems to have been one of equals or even of affection and friendship.³ The horse–human relationship permeates the entirety of the ancient world. It is found throughout art and literature. Once you begin to collect all of the evidence for interactions between horses and humans, the human connection with the horse begins to border on obsession. The Greeks even had a word that summed up this relationship perfectly: ‘*hippomania*’.⁴

The history of the horse, then, is closely intertwined with that of humans. Equids have played an indispensable role in the evolution of human culture for thousands of years. By far the most significant role fulfilled by the horse has been on the battlefield. The martial debt owed to the horse has been immortalized by monuments and epitaphs like that dedicated by Damis to his ‘steadfast war-horse/Pierced through the breast by gory Ares’.⁵ The courageous glory of the warhorse has been praised in every genre of literature. The *Book of Job* recounts how the horse ‘mocks fear and is not dismayed; he does not turn away from the sword nor the rattling quiver, the flashing spear and the javelin’.⁶ The sacrifices made by military horses are still honoured by charities such as the Brooke Foundation and on screen and stage in blockbusters such as *War Horse*.

CHAPTER 1

METHODOLOGY

The purpose of this book is to establish a typology for the horses of the ancient world. This typology will be used to examine how the form (conformation) of a horse dictated function – how the horse was used. To accomplish this I have used a multi-source approach to the topic by incorporating artistic representations, literary evidence, other material remains, native breeds and experimental archaeology. All of these sources have inherent advantages and disadvantages when used on their own, but when combined they provide a more complete picture of the horses of the ancient world.¹

One of the main problems related to the study of ancient horses is terminology, especially in relation to horses and ponies, or breeds and types. A distinction between ‘horse’ and ‘pony’ did not exist in antiquity. Categorization by height is arbitrary. Standard practice today dictates that any equine 14.2 hands high (hh) and under is a pony, while anything over that height is a horse.² This standardization does not always work: a 14 hh Arabian or Quarter Horse is still a horse, not a pony. Likewise, the Caspian horse of Iran rarely exceeds 13 hh, but is physiologically a horse. The pony is a distinct zoological type that traces its descent from the primitive pony of the Ice Age. Genuine ponies have an ample girth and very efficient digestive organs, which enable them to deal with a food supply that is both meager and difficult to digest. Their legs are strong but comparatively short, intended not for high speeds but rather for maintaining a consistent pace in difficult country. Ponies are sure footed, have plenty of stamina and are of robust

health. Overall, ponies are considered to be tougher than horses and are often 'good doers'. Based on its size to strength ratio, the diminutive Shetland pony is actually the strongest living equine. Many of the horses of antiquity, particularly from the Mediterranean, are miniature horses rather than ponies. These animals have longer, thinner legs, a lean build and generally a 'dry' appearance. Few of them, however, would have exceeded the 14.2 hh height criterion we now use to distinguish a horse from a pony. The large horses we are accustomed to today were the result of direct human intervention and they generally require much more care than the smaller horses of antiquity.³ In cases where these larger animals become feral, such as the 'wild' descendants of the Spanish horses in the New World, they revert in size and general appearance to resemble their ancient ancestors.⁴

The ancestral horses, those horses that existed before domestication, are called types. They are typically assigned to one of four categories: Equine Type 1 from Northern Europe, Equine Type 2 from the Northern Eurasian Steppe, Equine Type 3 from the Southern Steppe, Equine Type 4 from the Near East. In discussing domestic horses we generally try to assign every horse to a particular breed. But this method cannot work. When we employ the word 'type' we refer to 'a horse that fulfills a particular purpose – like a cob, a hunter and a hack – but does not necessarily belong to a specific breed'. 'Breed', by contrast, denotes 'an equine group bred selectively for consistent characteristics over a long period, whose pedigree is entered into a studbook'.⁵ To use the term 'breed' to classify the horses of antiquity is both anachronistic and artificial. Today there are well over 200 recognized breeds of horses and ponies, most with their own studbooks and registries. There are some very distinctive and unique breeds, usually throwbacks to ancient ancestors, such as the Norwegian Fjord or the Icelandic horse, but these are the minority. I have found that the majority of breeds can be placed into groups based on their physiognomy. One example of this is the European sport horse. This group includes the Hanoverian, Oldenburg, Dutch Warmblood, Danish Warmblood, Selle Français, and Trakehner. Their origins lie in the warhorses of the Medieval world. In more recent times, infusions of Arabian and Thoroughbred blood have lightened their build, changing their conformation to a form suited to the show ring

rather than the battlefield. Each of these breeds has its own studbook with very strict entry requirements based on size, colour, markings and – for stallions in particular – evaluation judging movement and paces in hand and while being ridden. In reality these sport horse breeds are all very similar to one another: they come from a particular geographical region and are bred to excel in the Olympic disciplines. Thus, it is not surprising that they would be conformationally alike. Similar trends can be seen with the draft type, mountain and moorland type, steppe type etc. This classification as ‘type’ instead of ‘breed’ should also be applied to the horses of the ancient world. Indeed, I believe it is even more appropriate at that time since horse breeding and physical appearance was determined more by environmental than human influences. In other words, there was very little specialized horse breeding in the ancient world.

ARTISTIC REPRESENTATIONS

The horse is ubiquitous in the art of the ancient world, appearing on temple pediments and friezes, victory monuments, tombs, in sculptural groups, equestrian statues, on vases and other ceramics, in frescoes and mosaics. In fact, one would be hard pressed to find a medium of ancient art from which the horse is absent. The horse turns up with such frequency that it is easy to ignore him. He becomes part of the background, or a stock figure in a scene. When we do notice them, horses in art are regularly dismissed as being either too ideal or too abstract to be of any use in determining the physical appearance of ancient horse types. In the case of the Parthenon frieze, the standard comment is that the horses have been portrayed smaller than they actually were to exaggerate the human form. Such commonly held misconceptions cause scholars to disregard the value of equine imagery. In fact, these painted and sculpted horses can provide a wealth of information. They are remarkably consistent in their depiction of certain conformational features. To explain this, one may consider the following two examples of Greek horses.

The first example from the eighth century BCE presents what we might call an abstract representation of the horse ([Fig. 1.1](#)).

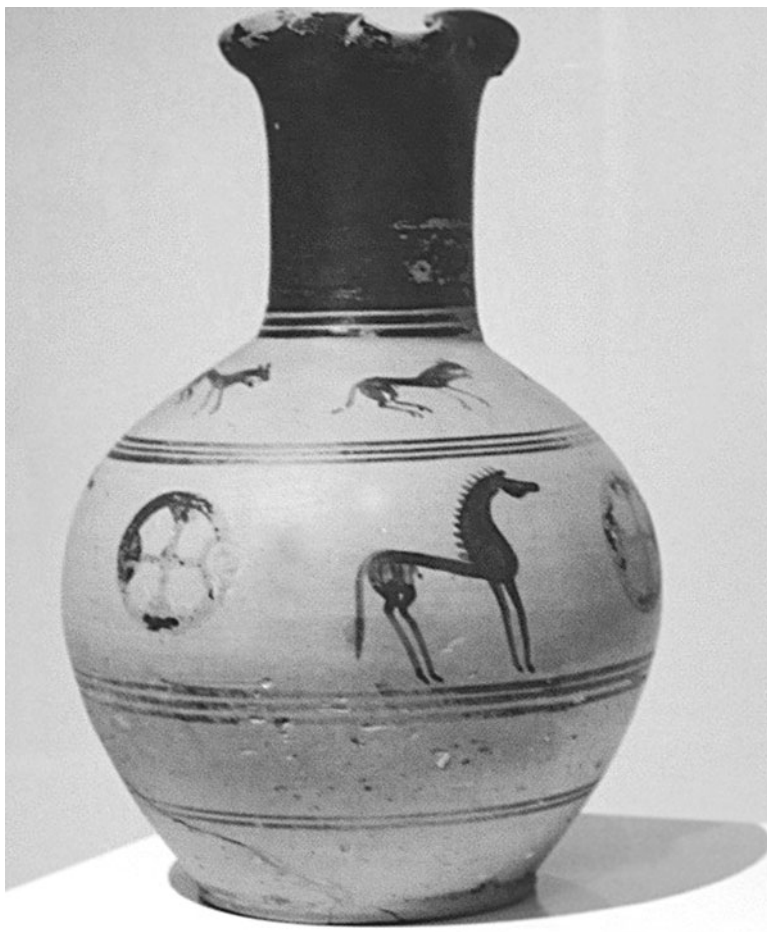


FIGURE 1.1 Trefoil oinochoe attributed to the Painter of the Roaring Lions with a late geometric representation of a horse, c.740 BCE.

There are, however, specific conformational features that the artist has chosen to emphasize. These include

1. Very upright head carriage that arches at the poll
2. A slender face with a straight profile
3. A lean body

4. Muscular hindquarters
5. Long legs

Particular emphasis is given to the neck and hindquarters, juxtaposed with the slenderness of the body and legs.

The second example, from the late sixth/early fifth century BCE is a great deal more 'fleshed out' and very clearly equine (Fig. 1.2). Despite the considerable attention to detail, the conformational features emphasized are identical to those of our more abstract horse with an upright, muscular neck; narrow, straight face; lean body; muscular haunches; long, slender legs – elements that we can call hallmark characteristics of the Greek horse.

The above two examples show that even an 'abstract' representation of a horse displays aspects of reality. The Greek images of equines all display the same conformational features. The importance of these features and the overall appearance of the Greek-type horse are discussed in relation to the Mediterranean horse.



FIGURE 1.2 Black-figure Skyphos attributed to the Painter of Philadelphia, c.500 BCE.

At the opposite end of the scale from our abstract, linear horses are those labelled as too ideal to be real. The prancing, galloping horses of the Parthenon frieze are a prime example of this style of iconography (Fig. 1.3). These poor horses seem to receive constant scholarly abuse: either they have been down-sized/shrunken to exaggerate the human form or they are too perfect to be representations of real animals. The first argument (that of the dwarfed horses) will be addressed throughout the book; the second statement (the perfect horse) can be dealt with here. The claim that the Parthenon horses are 'perfect' or 'ideal' is indeed correct. The equines sculpted on this frieze are the ideal equine. This does not, however, discount their usefulness to this study. What we see on the Parthenon frieze is the ideal specimen of the Greek horse. Pheidias and his colleagues portrayed the horses they were familiar with – native Greek stock – but as perfect specimens. Of course, the perfect horse does not exist today, nor did he in antiquity, but the concept of perfection did. This ideal equine is described by Greek and Latin authors – Xenophon, Virgil, Varro, Columella, Vegetius, Oppian – and he appears regularly in art. He is the ancient equivalent of our modern breed registries and studbooks. These registries contain descriptions of the ideal specimen for that particular breed or type. Any horse intended to be included in the registry is evaluated against this standard of perfection on conformation, movement and temperament. The idealized representations from antiquity are like these studbooks. They depict the native horses the artists saw on a regular basis as conformational ideals. The physical features found on these representations are the same as those on the living horses; the only

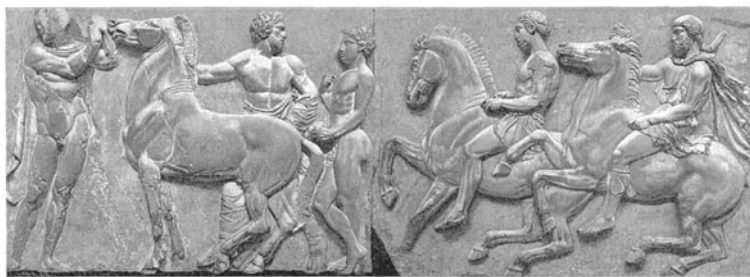


FIGURE 1.3 Sketch detail from the west frieze of the Parthenon.

exception being that the living examples would not have possessed every conformational ideal.

We also must answer this question: whose horses are being portrayed in the art? This is especially relevant if we look outside Greece proper at the Greek colonies of Asia Minor and the Black Sea, as well as Rome, particularly in the late Republic and early Imperial periods. In areas of rich cultural interaction, such as Greek colonies where Greek artists might be producing commissioned pieces for 'natives', it does seem fair to ask 'which horses are these?' Likewise in Rome, where artistic styles from all over the Mediterranean and its history were imported and re-invented to suit Roman tastes and ideas, we might question the veracity of the equids produced. Are these Roman horses or not? Once again I am confident in stating that the animals portrayed are the native equines, local horses familiar to both artist and commissioner were familiar. It is hard to imagine a Scythian chieftain would commission a piece and allow a horse other than his own type to be portrayed.

Similarly Roman art, for all that it borrows and adjusts styles of other cultures and earlier periods, nonetheless portrays an Italian horse. The Alexander Mosaic from the House of the Faun in Pompeii is an excellent example of this. Herodotus tells us that Nesaeon horses always pulled the chariot of the Persian king:

After them came the ten sacred horses called Nesaeon, splendidly arrayed. (They are called Nesaeon after the great plain in Media that produces these big horses.) Behind these ten horses came the sacred chariot of Zeus, drawn by eight white horses, and in behind the horses their charioteer followed on foot, holding the reins; for no human being may mount into the seat. Behind this came Xerxes himself in a chariot drawn by Nesaeon horses.⁶

The Nesaeon horse has a very distinct appearance, with his convex rams head, thick powerful neck and stocky body. The four black horses yoked to Darius' chariot in the mosaic, however, are distinctly not Nesaeon. Much like the Macedonian horses, they fit the standard Italian/Greek type.

LITERARY EVIDENCE

The literary record is full of references to horses. No matter what the genre, the horse always makes an appearance. Inscriptions, particularly the circus inscriptions from the Roman Empire, are one important source of written information. Successful charioteers were fond of putting up monuments listing the names, colours and 'breeds' of their best horses. Likewise, lead tablets from the Athenian Agora record the colours and brands of cavalry mounts brought in for the *dokimasia*.

As far as extant Greek and Latin texts are concerned, Xenophon's *Art of Horsemanship* is by far the most detailed horse-training manual surviving from antiquity. This text deals with selecting a conformationally sound animal, training, care, exercise and equipment. Most of the advice offered by Xenophon is sound and continues to influence horsemanship and training today. The *Art of Horsemanship* was the impetus for the revival of 'Classical Riding' in fifteenth-century Europe. Through the Renaissance texts the ideas of Xenophon have been passed down to the modern discipline of Classical Riding through the traditions of the Spanish Riding School in Vienna, the Cadre Noir at Saumur in France and the Royal Andalusian School of Equestrian Art in Jerez, Spain. Xenophon produced a second text devoted to horsemanship. His *On the Cavalry Commander* discusses the duties and obligations of the cavalry commander, as well as training exercises for war and spectacle.

The other major horse-related texts deal primarily with horse husbandry. The practice of *hippotrophia* is treated by Varro and Columella (*On Agriculture*), and Vegetius (*On Veterinary Medicine*) all of whom present detailed accounts of horse breeding, raising and care. Virgil (*Georgics*) likewise devotes some time to the ideal horse and how to train him. Aristotle (*On the Generation of Animals*) examines the reproductive cycles of the horse. Oppian (*On Hunting*) gives the most substantial list of horse 'breeds'; but references are found in other authors, most notably Strabo (*Geography*) and Pliny the Elder (*Natural History*).

The military horse appears in both historical prose and 'historical' poetry. There is also a tradition of equine anecdotes, most notably in Aelian's *Historical Miscellany* and *On Animals*.

Whatever context the horse is mentioned in, even if it is only an allegorical horse, it is clear the author was familiar with horses. For example, Arrian writes thus of horses and elephants:

It was clear to him [Alexander] that he could not effect the crossing at the point where Porus held the opposite bank, for his troops would certainly be attacked, as they tried to gain the shore, by a powerful and efficient army, well-equipped and supported by a large number of elephants; moreover, he thought it likely that his horses, in face of an immediate attack by elephants, would be too much scared by the appearance of these beasts and their unfamiliar trumpeting to be induced to land – indeed, they would probably refuse to stay on the floats, and at the mere sight of the elephants in the distance would go mad with terror and plunge into the water long before they reached the further side.⁷

Likewise, Euripides' description of Hippolytus' runaway chariot rings true for anyone who has ever experienced first hand a bolting horse:

And sudden panic
fell on the horses in the car. But the master –
he was used to horses' ways – all his life long
he had been with horses – took a firm grip of the reins
and thrashed the ends behind his back and pulled
like a sailor at the oar. The horses bolted:
their teeth were clenched upon the fire-forged bit.
They heeded neither the driver's hand nor harness
nor the jointed car. As often as he would turn them
with guiding hand to the soft sand of the shore,
the bull appeared in front to head them off,
maddening the team with terror.⁸

The literary record is both an important and reliable source of material as there is little risk of anachronism. The basic physical form, instincts and general needs/requirements have not changed from the time of domestication. The horse was also an intrinsic part of daily life in the ancient world. Further, if we accept that the

majority of ancient authors were from the upper classes, we may assume that they themselves would have been familiar with the quirks and nuances of horses as they likely had equines of their own. Thus, the horse was not foreign to them. With few exceptions, they had no reason to manipulate or exaggerate their descriptions of horses. Even in cases where bias or stereotyping does appear, the descriptions are not so far off the mark. Such an example can be found with Livy's description of the Numidian cavalry and their horses.

Horses and men were puny and scrawny; the riders had no body-armour or weapons apart from the javelins, which they carried; the horses had no bridles, and their very gallop was unsightly, racing along as they did with neck stiff and head outstretched.⁹

The native horses of North Africa were small and spare in build. These horses had evolved to live in the arid extremes of the northern Sahara. Any excess fleshiness is undesirable in desert-type horses, as illustrated in an image of a modern-day Berber horse from North Africa, living on Crete (Fig. 1.4).¹⁰

A collection of some 300 lead tablets from the Athenian Agora gives us an insight into the mechanics of the Athenian cavalry in the fourth century BCE.¹¹ These tablets appear to be records of the cavalry *dokimasia*: an evaluation of cavalry mounts.¹² The state, at least in the fourth century BCE, provided a stipend to help cover the costs of equine maintenance – horse ownership has never been inexpensive – and this stipend had to be put towards horse care.¹³ During the *dokimasia* officials inspected each cavalry mount to see if it was fit for service and to ensure the stipend was going towards the upkeep of the horse. Any horse declared unfit for service was branded as such and his owner had to purchase a replacement mount. The *dokimasia* tablets recovered from the Agora record the colour and brand of each horse; sometimes also the name of the owner and his tribe. These tablets, along with the circus inscriptions from the Roman Empire, are a key source of information about horse-breeding regions in the ancient world. The tablets, for example, can tell us which areas of Greece were producing cavalry mounts. Once these areas have been established



FIGURE 1.4 The author riding the Berber gelding Magnus.

we can look at why these regions produced quality cavalry mounts. Likewise, we can use the circus inscriptions from the Roman Empire to determine where the successful racehorses were being bred and again turn to the geography and climate of that area to examine why they produced such excellent athletes.¹⁴

OTHER MATERIAL EVIDENCE

The physical remains of the equines of antiquity can be a valuable source of information about the size and basic conformation of horses. Johnstone carried out an extensive study on the equid remains of the Roman world, particularly Britain, in her doctoral dissertation.¹⁵ Azzaroli provides numerous examples of equine skeletons and their measurements from throughout the ancient world.¹⁶ Bökönyi published a report on the Iron Age horses of Central and Eastern Europe in which he examines the equine

skeletal remains in the Mecklenburg collection. He focuses particularly on the bone measurements and ratios to try and determine whether 'it is not possible that in Central and Southeastern Europe there lived only a single but highly variable group of horses, and whether the Celtic and Scythian horses formerly considered so very different are not the extreme forms of this one type'.¹⁷ The steppe cultures of Central Asia provide us with the greatest number of equine skeletons thanks to their custom of interring horses with the dead. General descriptions of these kurgan/barrow burials can be found in two seminal works on the topic of the steppe cultures by Rostovtzeff and Minns.¹⁸ The most extraordinary examples of horse burials are found in the Pazyryk kurgans in the Altai Mountains. These burials are of great importance because their contents were entirely preserved by permafrost, leaving us with equine remains that still have their skin and coats.¹⁹

Equestrian equipment is a valuable source of information about the social and cultural status of the horse in different societies. Bridle bits are a particularly good example of this. The bits of the ancient world can be classified into two categories: snaffle or curb with a smooth or rough mouth. The majority of bits have a jointed mouthpiece. Examples of single-bar mouthpieces are quite commonly from Luristania, and were most likely used for driving as opposed to riding. The snaffle bit is generally considered to be 'milder' than a curb and it is the older of the two designs. The snaffle is made up of the mouthpiece and cheekpieces, to which the reins are attached. This type of bit works by exerting direct pressure on the corners of the mouth and indirect pressure on the poll. A curb bit, on the other hand, works on the principle of leverage. A curb bit consists of the mouthpiece which often has a port – an arched section in the centre of the mouthpiece; the higher the port, the stronger the bit – a curb strap or curb chain that does up under the chin, and shanks of varying length to which the reins attach. The longer the shank, the greater is the degree of leverage on the head. When a rider puts pressure on the reins, the bit shifts in the mouth, raising the port and exerting pressure on the poll, encouraging the horse to flex and soften through the jaw. While it must be acknowledged that any form of bit can be made mild or severe depending on the hands that

guide it, generally one must accept that certain types of bits are inherently more severe than others.

When it comes to the bits of antiquity, there are two very distinct styles that appear – the simple single-jointed snaffle with round cheekpieces that is found all over Central Asia and the harsh barbed snaffles and extreme curbs commonly found in the Greek and Roman worlds. I believe that the style of bit used is closely related to the social function of the horse in a particular culture. Amongst the steppe cultures of Central Asia the horse was an intrinsic part of everyday life. The inhabitants of the steppe spent most of their lives on horseback and their choice of bit reflects this. They were not concerned with absolute submission and obedience nor the concepts of balance and collection. Their survival and livelihood were dependent on their horses; they were a part of everyday life, not showpieces. To the Greeks and the Romans, on the other hand, the horse was very much a visible status symbol. Their value and importance lay in their cost, not their usefulness in daily life. These horses were used for war and entertainment. Their beauty lay in barely controlled energy and a submissiveness attained through equipment as much as training. This is not to say that all riders were like this. In his *Art of Horsemanship* Xenophon clearly describes a type of rider who must have existed, although how common such a skilled horseman was is uncertain.

EXPERIMENTAL ARCHAEOLOGY

Texts, art and archaeological evidence together give us a good idea of what the horses of antiquity looked like. This image can also be compared with native types to better understand how the types were a result of environmental conditions. We can also look at horse husbandry practices in these same regions to get a better idea of how they are related to both form and environment. This still, however, leaves a rather sizeable gap in our overall understanding of the horse in the ancient world. It does not entirely explain how form influenced function. To better understand why certain varieties of arms and armour as well as specific kinds of tactics and cavalries developed in conjunction with particular horse types, we need to turn to experimental archaeology.

Some scholars might question the validity of using experimental archaeology as a legitimate tool for academic research. One must remember that experimental archaeology is not reenactment or role-playing. It is an attempt to try to understand how or why things were used in a particular way through practical experience as well as trial and error. For my research I accomplish this by using different types of horses and reproductions of ancient equestrian and military equipment. I do not think I am a Macedonian Companion or a Parthian cataphract; rather I am trying to determine how horses were trained for different styles of riding and warfare, what type of horse was suited to a particular cavalry, why riders rode in a particular way and so forth. In sum, I am establishing the limitations and capabilities of the horses and riders of antiquity.

The primary reason this type of work is relevant to my research is the horse himself. The general behaviour and physiology of the horse has not changed since his domestication. Yes, the domestic horse has become more amenable to training over the past several millennia as a result of selective breeding for temperament. The horse, however, is still a herd and prey animal designed to live on the open steppe. This means the horse evolved a strong flight response. This intrinsic flight behaviour has always been something to be considered when training a horse. Likewise, the equine herd mentality plays a significant role in determining how a horse responds to its education. Some horses are herd-bound to such a degree that it is dangerous to try to ride them out alone. This is not a modern issue since Xenophon writes:

After the horse appears to have had enough exercise, it is well to give him a rest and then to urge him suddenly to the top of his speed, either away from other horses or towards them, then to quiet him down out of his speed by pulling him up very short, and again, after a halt, to turn him and push him on. It is very certain that there will come times when each of these maneuvers will be necessary.²⁰

In this passage Xenophon indicates the importance of training a horse to leave and return to horses under the control and at the

command of his rider. To teach a horse to do this requires an understanding of basic horse herd behaviour.

Herd behaviour further influences the personality and temperament of individual horses. Horse herds are very hierarchical and this produces horses that are dominant, submissive or neutral. The more dominant a horse, the higher up in the pecking order he is. A submissive horse must be trained, ridden and disciplined very differently from a dominant one. Likewise, sex plays a role in how to approach horse training. One well-known saying states that a trainer will 'talk to a stallion, tell a gelding and discuss with a mare'. Temperament and sex both influence the suitability of a horse for a particular job, including styles of mounted combat.

Much like behaviour, equine physiology has not changed dramatically since the evolution of our domesticated horse: *Equus caballus*. Aside from slight variations in the number of ribs or vertebrae, the equine skeletal, musculature and vascular systems have remained the same. The horse is built to run long distances over grasslands. His body is both fragile and durable at the same time. He was designed to have high levels of endurance and the ability to survive in harsh conditions. Even with the increasingly common practice of specialized breeding, the basic needs/requirements of the horse have remained the same. This means I can use both the behaviour and physiology of the modern horse to gain knowledge about how the horses of antiquity were trained and maintained. To facilitate this I regularly ride and train a number of horses ranging in size from small Arab-types to large draft-types and of all different temperaments and personalities, and have travelled to Greece, Turkey and Mongolia to study and ride their native horses. The purpose of these trips was to examine first-hand how these horses are adapted to their native environment both through conformation and physical/athletic capabilities.

Native horses play an important role in view of experimental archaeology when it comes to the study of ancient horses. This is particularly applicable to the native horses of the Mediterranean region and Central Asia. These areas have not experienced the same influx of foreign horse blood and the all too common practice of 'improvement' to produce taller, faster, more athletic etc. animals. This is for two reasons. First, these regions are not

suitable for the production of larger, Northern European style draft and sport horses. When these types of horses are imported to the Mediterranean and Central Asian regions they require an extensive amounts of care and pampering because they are not physically adapted to live in such environments. Second, horses still are, or until recently were, an integral part of daily life in these regions. As these horses have remained relatively unchanged through foreign influence, they can give us a unique perspective on the horses of antiquity, their adaptation to the environment and their physical abilities. Studying these animals first hand and riding them in their native climate over all sorts of terrain gave me a new appreciation and understanding for their toughness and endurance. I further gained hands-on experience that I can use to explore how the horse was used in antiquity, particularly with regards to cavalry tactics and horse husbandry practices recorded in the texts.

I recognize there are limitations to this kind of research. I cannot re-create an actual battle scenario. I will never know what it was like to ride a warhorse in combat. What I can do is study and test how horses were trained for battle through the literary and practical evidence, and by taking into consideration equine behaviour and physiology, determine how horses might have reacted to different situations.

CHAPTER 2

THE HORSE

What is a horse? This might seem to be a simple, pedantic question. The horse is one of the most easily recognizable animals in the Western world. The answer to this question is, however, the backbone of this book. Only by understanding the nuances of equine evolution, behaviour and physiology can we begin to explore the history of the horse with any degree of thoroughness. Although the focus of this book lies in the ancient world, the need to look to the horse to understand his impact and use in human society applies to any time period. The common interpretation that man manipulated the horse to serve his own purposes can only lead to a false interpretation of facts. The horse is a living creature with basic physical and mental needs for survival. In order to thrive, these requirements must be met, whether in the wild or domesticity. As we shall see, the instincts of the horse as prey and herd animal exercise a powerful influence on his training and use by humans. Simply put, man could not 'reprogramme' the biological wiring of the horse to better suit his needs; he had to work with the natural characteristics of the horse – both psychological and physiological.

THE EVOLUTION OF THE HORSE

Equus caballus, the domestic horse, is the end result of a long evolutionary chain that began 55 million years ago in the Eocene period. The horse is classified as an odd-toed ungulate in the family *Equidae*.¹ The earliest member of the *Equidae* was tiny

Hyracotherium 'Hyrax-like creature', commonly known as *Eohippus* 'Dawn Horse'. *Hyracotherium* stood less than one metre tall and was a solitary, browsing herbivore whose habitat extended through the prehistoric forests of North America and Eurasia. Little *Hyracotherium* looked nothing at all like our domestic horse; he had teeth designed for grinding down tough foliage, and his feet were not hooves, but padded toes – three toes on the front feet and four on the hind – that allowed him to move more like a cat or dog. The speed provided by long legs and a single elongated toe was of no use to a small forest-dwelling mammal that relied on camouflage and stealth to hide from predators.

Approximately 37 million years ago, in the late Eocene, two new *Equidae* appeared in North America: *Mesohippus* and *Miohippus*. The skulls of both were decidedly more 'horse-like' than that of *Hyracotherium*, although they still stood less than one metre tall and had three-toed, padded feet (Fig. 2.1). From *Miohippus* developed two lines of descent: a branch of browsing equines (the *Anchitheres*) and a branch of grazing equines. The *Anchitheres* resembled *Miohippus* in appearance but they were considerably larger; this

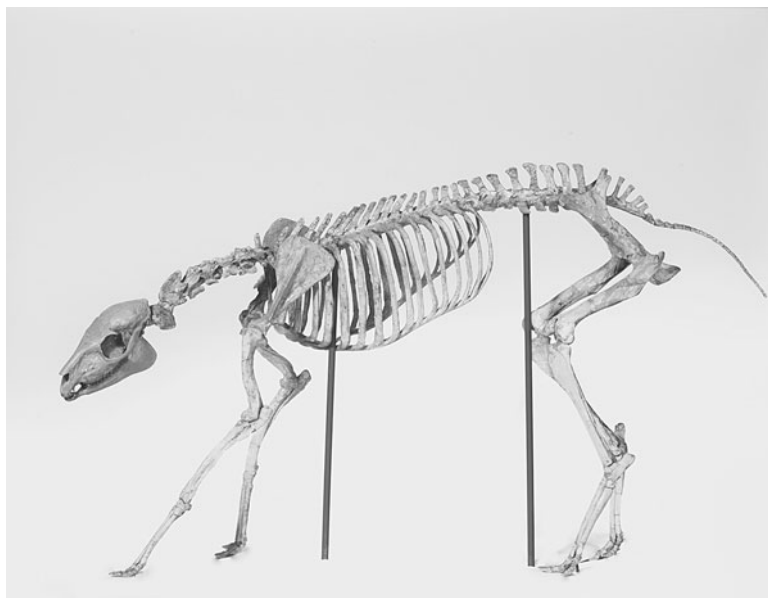


FIGURE 2.1 Early horse skeleton *Mesohippus bairdii*.

line went extinct in North America and Eurasia about nine million years ago. The extinction of the *Anchitheres* was likely caused by a changing climate when the vast forests that formed their habitat were gradually replaced by expanding grasslands. Unlike the *Anchitheres*, the grazing equines successfully adapted to environmental changes by losing the fleshy pads on their feet and taking more weight onto the third toe of their foot. This adaptation was a response to the need to run faster and more efficiently on the open plains. These changes first appeared during the Miocene period with *Parahippus*. It also follows that *Parahippus* began to eat grass, as opposed to relying on a foliage-based diet. This trend continued with *Merychippus* (Fig. 2.2). The importance of grass to the diet of *Parahippus* and *Merychippus* suggests that the *Equidae* were leaving the dwindling forests and moving onto the grasslands.

At the end of the Miocene major climate changes further increased the spread of grasslands, causing mass extinction among many species, including the three-toed equids. *Pliohippus*, the first of the monodactyl (single-toed) equids appeared around 12 million years ago. His single-toed hooves made *Pliohippus* faster

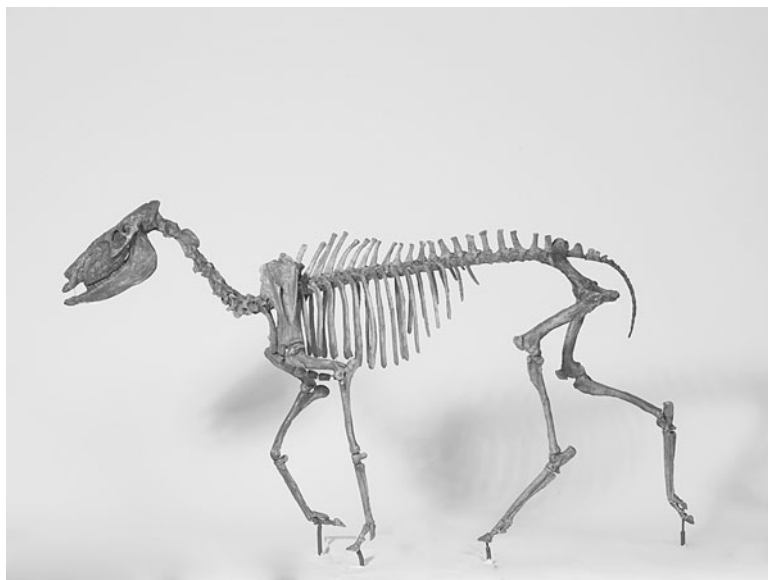


FIGURE 2.2 Ancestral horse skeleton (cast) *Merychippus*.

than any of his predecessors. He was also equipped with teeth designed specifically for grazing. These evolutionary changes show that *Pliohippus* lived on the open spaces of the grasslands, not within the confines of the forest. On account of these adaptations, *Pliohippus* is considered the grandfather of the domestic horse. After *Pliohippus* came *Hippidion* and *Dinohippus*. *Hippidion* was a large equid species living in South America between two million and 10,000 years ago. *Dinohippus*, who appeared 12–10 million years ago in North America, is thought to be the closest relative of our modern horse.

Equus, the animal we recognize as the first 'true' horse, appeared five to six million years ago. His habitat spread throughout North and South America, Europe, Asia and Africa. *Equus* gave rise to several species, including the wild ancestors of our modern horse, onagers, zebras and asses. Approximately 10,000 years ago all species of equid became extinct in North and South America. Equids remained unknown in the Americas from then until the arrival of the conquistadores in the fifteenth century CE. The cause of the extinction was likely a combination of climate change, disease and over hunting by prehistoric humans.

The evolutionary history of the *Equidae* provides an important insight into how environments shaped the development, appearance and adaptations of a species. *Equus caballus* looks nothing like *Hyracotherium*; they share few genetic characteristics other than being warm-blooded, mammalian herbivores. *Hyracotherium* developed in a forest habitat. He was small and solitary out of necessity and there was no advantage to his becoming larger, or living in a herd. His padded, toed feet allowed him to move quietly across the forest floor, while his jaw structure was designed to grind down the tough, fibrous materials that made up his diet. *Hyracotherium* would not have survived long exposed on the open steppe for two reasons: he was not fast enough to escape predators and he was not designed to be a grazing animal. As the environment and climate of the prehistoric world changed, so too did the physical form of the *Equidae*. When the *Equidae* began to shift their habitat from dense forests to open plains, their conformation started to become that of a runner: elongated legs and a single hoof on each foot allowed them to cover long distances at spend. At the same time, dental and digestive

structures changed to that of a grazing animal. Even behaviour changed as the *Equidae* became herd animals living in harem and bachelor groups with strict hierarchies – essential for a prey animal to survive on open grasslands. *Equus*, the end result of these changes, would not have long survived in *Hyracotherium*'s habitat. As a large, grazing herd animal *Equus* could not move stealthily through the forests and his speed would have been of no use in the dense foliage. His longer, slimmer legs would be at risk of injury if he tried to gallop over the debris of the forest floor. Finally, the tough twigs and leaves of a forest diet would quickly wear down teeth designed for grazing.²

BEHAVIOUR

Two major evolutionary factors define equine behaviour – both of which had a significant impact on the horse–human relationship: first, that the horse is a prey animal; second, that he is also a herd animal. Both of these factors had a major influence on the physical and behavioural evolution of the horse and consequently played a large role in the domestication and training of the horse from antiquity to the present day.

First and foremost is the fact that the horse is a prey animal. This means that he is controlled by an inherent fight or flight instinct, and in the case of the horse the latter prevails more often than the former. This is the result of physical evolutionary adaptation for survival on the open plains – an environment where there was nowhere to hide from predators. This meant the horse had to be able to outrun any potential danger and so, like many other large plains-dwelling mammals, he developed long legs and a robust cardiovascular system, elements that allowed a horse to maintain considerable speed over long distances. This flight instinct made the horse a naturally cautious animal who was constantly aware of his surroundings, ready to wheel and bolt at the first hint of danger. While this behaviour is most apparent in wild or feral horses it is also found in our domesticated equines. Some horses are more wary or 'spooky' than others, but even the most laid-back, 'bomb proof' horse can suddenly display his flight instinct if he is startled by something. In the domestic horse this prey behaviour manifests itself most clearly when the animal is

exposed to potentially stressful situations such as a new environment. The 'spookier' or more high-strung horse exhibits flight behaviour more frequently, even in familiar environments. Something as simple as moving an object from its accustomed place in an arena to another spot can set off a prey reaction.³ The prey instinct cannot be completely trained out of a horse. Indeed, many of the top sport horses today are high-strung animals who have had their flight behaviour and energy redirected into a specific purpose like jumping or racing.

Horses are rarely violent animals and they prefer to avoid physical confrontation. When two rival stallions meet, there is much posturing and squealing. This very demonstrative body language is an attempt to avoid combat, as one stallion tries to 'psych out' his opponent. The desire to avoid a fight is a simple one: physical engagement risks serious injury to both combatants, and injury can be fatal to a horse. When a horse does lash out in aggression, there is usually a clear underlying cause. If a well-trained riding horse suddenly starts displaying violent outbursts during regular handling or exercise, pain or illness is likely the underlying cause. Perhaps the most famous account of an equine with behavioural issues from antiquity is found in Plutarch's *Life of Alexander*:

There came a day when Philoneicus the Thessalian brought Philip a horse named Bucephalus, which he offered to sell for thirteen talents. The king and his friends went down to the plain to watch the horse's trials, and came to the conclusion that he was wild and quite unmanageable, for he would allow no one to mount him, nor would he endure the shouts of Philip's grooms, but reared up against anyone who approached him. The king became angry at being offered such a vicious animal unbroken, and ordered it to be led away. But Alexander, who was standing close by, remarked, 'What a horse they are losing, and all because they do not know how to handle him, or dare not try!' ... Alexander went quickly up to Bucephalus, took hold of his bridle, and turned him towards the sun, for he had noticed that the horse was shying at the sight of his own shadow, as it fell in front of him and constantly moved whenever he did. He ran alongside the animal for a little way,

calming him down by stroking him, and then, when he saw he was full of spirit and courage, he quietly threw aside his cloak and with a light spring vaulted safely on to his back. For a little while he kept feeling the bit with the reins, without jarring or tearing his mouth, and got him collected. Finally, when he saw the horse was free of his fears and impatient to show his speed, he gave him his head and urged him forward, using a commanding voice and a touch of the foot.⁴

In the case of a horse like Bucephalus aggression is a response to fear; Bucephalus does not have the option of flight to escape the fearful thing (his shadow), and so his fear is redirected into aggression. That fear is the catalyst is evident from the rest of the Plutarch passage in which the young Alexander recognizes Bucephalus' issue and deals with it by taking the horse away from the cause of his anxiety. Once Bucephalus feels free of his terror, he becomes rideable and the aggression disappears.

The second defining behavioural element of the horse is that he is a herd animal. Equines are very social animals and they are not meant to live a solitary life. In natural conditions horses will form two types of herds: the harem or family band which is made up of a stallion, his mare(s) and their young offspring, and the bachelor band, which comprises young stallions who have yet to successfully challenge a dominant stallion for his harem, and older males who have lost their mares to a younger rival (Fig. 2.3). A wild or feral horse will try to avoid isolation at all costs – this is because there is greater safety in numbers. A horse on his own has no one to watch out for him while he eats or sleeps. The only time a wild horse will willingly leave the herd is when a pregnant mare is about to give birth; but as soon as the foal is on his feet – usually within one hour of birth – mare and foal rejoin the safety of the group.⁵

Horse herds maintain a strict hierarchy: the alpha mare is responsible for leading the group, while the stallion brings up the rear, keeps his herd together and protects them from danger.⁶ The mares, on the other hand, are responsible for maintaining order within the herd. Once a hierarchy has been established, there is little aggression between herd members. The only disturbances happen when a new horse joins the group, in which case the aggression typically comes from lower-ranking members of the



FIGURE 2.3 Harem band of Przewalski horses in Hustai National Park, Mongolia.

group who do not want to fall lower down in the pecking order. Body language is essential in maintaining order and communication within a herd. While horses can be very vocal and are capable of producing a range of sounds, they prefer to communicate silently by using their stance, mouth/teeth, ears and tail to signal danger, displeasure, enjoyment and relaxation (Fig. 2.4).⁷

PHYSIOLOGY

One of the primary issues related to the study of equines is the need to differentiate a horse 'type' from a 'breed'. The word 'breed' denotes intensive human interference in the selection of particular physical traits such as size, head shape and colour. The chosen traits do not necessarily improve an equine's ability to survive, rather they are chosen for aesthetic or economic reasons. Moreover, selective breeding for the purpose of enhancing particular features makes horses more dependent on human care. 'Breed' denotes a sense of exclusivity, especially when accompanied by brands and papers. For the most part these supposedly unique 'breeds' can



FIGURE 2.4 Horses maintaining rank and order in a herd.

really be seen as ‘types’ based on their physical appearance and suitability for particular jobs. Today, some types have been much altered by selective breeding, enhancing their ability to succeed at a particular task. This is the result of the horse being made obsolete in agriculture, industry and transportation. In antiquity, however, horse types developed as a result of environmental conditions. The physical form of a horse – its conformation – was dictated by climate, terrain and nutrition, not human preferences. As a result, we can look at the horses of the ancient world based on their geographical location; in this book we will focus on the Central Asian horse, the Near Eastern horse(s) and the Mediterranean horse. Within these types we come across references to what at first appear to be ‘breeds’. Horses are frequently referred to by their regional place of origin, the most famous example being Bucephalus the Thessalian. The third-century CE writer Oppian gives a whole list of names in his *Cynegetica*:

Various are the tribes of horses, even as the countless races of men, the diverse tribes of mortals that live by breed. Nevertheless I will declare which are the best among them

all, which are foremost in the companies of horses; to wit, the Tuscan, Sicilian, Cretan, Mazican, Achaeon, Cappadocian, Moorish, Scythian, Magnesian, Epeian, Ionian, Armenian, Libyan, Thracian, Erembrian.⁸

Likewise Strabo makes note of particular areas within the Greek peninsula:

But there are ample pastures for cattle, particularly for horses and asses that are used as stallions. And the Arcadian breed of horses, like the Argolic and the Epidaurian, is most excellent. And the deserted lands of the Aetolians and Acarnanians are also well adapted to horse-racing – no less so than Thessaly.⁹

These passages certainly seem to suggest that a wide variety of different horse breeds were found throughout the ancient world. Moreover, each region had its own brand by which all horses born in that territory were marked. Greece provides an excellent example of the prevalence of local brands. A collection of lead tablets from the Kerameikos and the north-west corner of the Athenian Agora dating from the mid-fourth to the mid-third centuries BCE have been identified as records of the Athenian cavalry. Each tablet is inscribed with the name of the cavalryman, the colour of his horse, the horse's brand and its replacement value. A total of 25 brands are recorded on the tablets.¹⁰

An example of the Nike brand can be seen on the bronze racehorse from Artemision, dated to the Hellenistic period.¹¹

This, of course, begs the question of why there would be so many different brands if Greek horses can all be grouped under the physiological type of the Mediterranean horse? The answer is relatively straightforward. The brand was a mark of regionalism. It was a way for a *polis* to stake personal claim to a particular animal, as in the case of Bucephalus. The brands were in actuality a means of creating an artificial distinction between Greek horses. They allowed for horses from a particular region, such as Thessaly, to claim higher prices. Brands are used in much the same way today, as can be show by the example of the European sport horses. Each of these breeds has its own unique brand. In some cases, as with the Trakhener, there are separate brands used to distinguish

TABLE 2.1 Brands from the Agora wells.¹²

Brand	Date	Frequency
Dolphin	fourth century	1
Circle	fourth century	1
Thunderbolt	fourth and third century	1
Caduceus	fourth and third century	2
Helmet	fourth and third century	2
Krater	fourth and third century	5
Nike	fourth and third century	3
Dove	fourth and third century	1
Axe	fourth and third century	6
San	fourth and third century	5
Trident	fourth and third century	3
Agyieus	third century	1
Eagle	third century	5
Arkadian	third century	2
Ox-head	third century	2
Snake	third century	12
Centaur	third century	1
Cerberus	third century	1
Crow	third century	2
Lioness	third century	1
Lyre	third century	3
Quail	third century	3
Club	third century	2
Triton	third century	1
Bridle	third century	1

horses born and registered in Europe from those in North America. This allows the owner of a branded animal to claim the superiority of that particular breed because it is a Hanoverian, Oldenburg etc. These animals are all physically alike – not surprising as they developed in similar environmental conditions across Northern Europe from the medieval war and work horse to become specialized athletes intended for the Olympic disciplines of dressage, show-jumping and eventing. The brand is simply a synthetic creation to distinguish the local origins of a wide-ranging type. Given the rare occurrence of many brands in antiquity, we must also suspect that large stud farms used their own personal brands to mark horses born at that facility. Thus, we



FIGURE 2.5 Detail of the Nike brand on the Artemision horse.

can view the branding of horses in antiquity as similar to the practice followed on ranches today. The argument for the existence of individual brands is supported by a passage about Venetian horses in Strabo:

And it is said that one of the prominent men, who was known from his fondness for giving bail for people and was mocked for this, fell in with some hunters who had a wolf in their nets, and, upon saying in jest that if he would give bail for the wolf, and agree to settle all the damage the wolf should do, they would set the wolf free from the toils, he agreed to the proposal; and the wolf, when set free, drove off a considerable herd of unbranded horses and brought them to the steading of the man who was fond of giving bail; and the man who received the favour not only branded all the mares with a wolf, but also called them the 'wolf-breed' – mares exceptional for speed rather than beauty; and his successors kept not only the brand but also the name for the breed of the horses, and made it a custom not to sell a mare to

outsiders, in order that the genuine breed might remain in their family alone, since horses of that breed had become famous. But, at the present time, as I was saying, the practice of horse-breeding has wholly disappeared.¹³

The use of private brands further supports the argument that horses in antiquity should be classified by type rather than breed: brands create an artificial sense of individuality or uniqueness, attaching a man-made value to particular animals.

THE IDEAL HORSE IN ANCIENT LITERATURE

When looking at horses and assessing their suitability for work, we examine their conformation. This is not a matter of aesthetics. A true horseman will look past superficial features like colour and markings to see the basic structure of the animal. No matter what type a horse might be, there are specific conformational features that are necessary to ensure the longevity of an equine's working life. These requirements have not changed over time even if the way humans use horses has. Conformation dictates the suitability of a horse for a particular job; it is 'the adaptability of the horse's body for general or special work'.¹⁴ A horse can only be used as his anatomy allows. Attempting to force a horse to perform a task for which he is not designed frequently leads to serious injury. As one noted equine veterinarian writes: 'Every horse must be ridden [or driven] to its natural anatomy.'¹⁵

Xenophon, Varro, Virgil, Oppian and Columella each provide a detailed literary description of the ideal horse. These five authors come from different periods; they are writing different genres of text and for different purposes, yet their ideal horses are all strikingly similar. Further, these ideal horses are not all intended for the same job: there is the warhorse of Xenophon and Virgil, the breeding stud of Varro, Columella's racehorse and Oppian's hunter.

THE HOOF

The hoof is one of the most important structures in equine anatomy; the oft-repeated phrase 'no hoof, no horse' certainly holds true. Xenophon wisely states:

TABLE 2.2 Characteristics of the ideal horse.

	Xenophon	Varro	Virgil	Columella	Oppian
Hoof	Thick horn, high walls, ringing sound.	Hard.	Solid horn.	High, hard, round, hollow sound.	Round, high above the ground, good horn.
Limbs	Moderately sloping pastern; thick, clean cannons; supple knees.	Well-proportioned; straight and symmetrical legs; round, but not large knees.	N/A	Soft, tall and straight legs; knees that are small, tapering and not turned inwards.	Sloping pasterns; straight, long and thin cannons; unfleshy limbs.
Chest	Broad.	Broad and full.	Muscular.	Broad and muscular.	Large.
Shoulders Body	N/A	Broad.	N/A	Big and straight.	N/A
	Flanks deep and swelling towards the belly.	Broad and harmonious; fair-sized barrel; flanks sloping downwards.	Short belly.	Drawn in belly; arched flanks.	Large body.
Back	Double-back.	Double-back.	Plump.	Double-back.	Broad, double-back.
Loins	Broad and short.	N/A	Double-joins.	Broad and sunken.	N/A
Haunches	Broad and fleshy.	N/A	N/A	Brawny and muscled.	Hips fat; thighs compact and muscular.

TABLE 2.2 *Continued*

	Xenophon	Varro	Virgil	Columella	Oppian
Neck	Upright and flexible and the poll.	N/A	High.	Soft and broad, but not thick.	Curved.
Head	Bony, with small cheeks.	Not oversize.	Clean-cut.	Small.	Small, high above the neck, broad forehead.
Jaws	Symmetrical.	N/A	N/A	N/A	Curving towards neck.
Mouth	N/A	N/A	N/A	N/A	Adequate.
Nostrils	Wide open.	Full.	N/A	Wide open.	Wide.
Eyes	Prominent.	Dark.	N/A	Dark.	Clear and fiery.
Ears	N/A	Close-lying.	N/A	Short, upstanding.	Small.

In examining his body, we say you must first look at his feet. For, just as a house is bound to be worthless if the foundations are unsound, however well the upper parts may look, so a war-horse will be quite useless, even though all his other points are good, if he has bad feet; for in that case he will be unable to use any of his good points.¹⁶

Bennett is quite correct when she calls the hoof 'a miracle of living engineering'.¹⁷ At its most basic level, the hoof performs three functions: it supports the horse's weight, absorbs impact and provides traction. The parts of the foot can be divided into two categories: the outer foot which is made up of the horny wall, sole and frog and acts to protect the sensitive structures of the inner foot which is comprised of bones, blood vessels and cartilage.¹⁸ All our authors indicate that the hoof should be hard. It is also recommended that it be thick with solid horn. Since the hooves bear the entirety of a horse's weight, any unsoundness or conformational problems can incapacitate the animal.¹⁹ The ideal hoof should be round and proportionate to the horse's size; the horn and wall thick and hard; the frog healthy and the sole arched upwards so as not to touch the ground.²⁰

The strength and durability of the hoof is dependent on a number of factors including its size, shape and colour. The size of the hoof should be proportionate to the horse. A large hoof is heavier and more strenuous to lift and places greater strain on a horse's joints. The oversized foot is also more likely to cause injuries from knocking, brushing or overstepping.²¹ A too-small hoof in relation to the size of the horse can cause unsoundness as the hoof structures are unable to bear the weight of the animal efficiently. Of the two size extremes, the small foot is generally considered to be less of a conformational fault than the too-large hoof.²² In shape the hooves should look like two pairs. While the front and back feet are both round, the hind hooves are narrower and more oval in appearance.²³ The five predominant faulty hoof shapes are the following

1. The Wide Hoof: This shape is characterized by a wide circumference of the foot; angular walls; truncated, low heels and a flat sole.

2. The Narrow Hoof: This hoof type is identifiable by its oval shape; high, upright heels; long walls creating a narrow frog; an excessively concave sole and narrow heels.
3. The Flat Hoof: This kind of foot has low, flat heels; a very flat frog; a flat sole and a horizontal wall. The flat hoof is prone to severe bruising because there is no mechanism to effectively absorb the shock of concussion when the foot strikes the ground.
4. The Curved Hoof: This hoof shape results from faulty conformation in other parts of the body. If a horse is base narrow, meaning the space taken up by the feet is smaller than that of the body with a toe-in or out conformation, the increased pressure on the outside wall will cause the hoof to push inwards and grow in a curve.
5. The Upright Hoof: This hoof has a pastern-hoof angle greater than 55 degrees and resulting growth issues can create a club-foot.²⁴

The question of whether or not the colour of a hoof affects its durability is much debated. The general belief is that light-coloured hooves are softer than dark ones and thus more prone to ailments. Hyland states:

Black hooves are frequently tougher than the indeterminate grayish-black of many chestnuts or the whitish horn of the white-legged or totally grey horses. Solid bay horses with no white markings always have black hooves and are well known to have far fewer hoof problems than horses of other colours, as are dun horses which also have black legs and hooves.²⁵

Today, many hoof faults can be corrected or compensated for through corrective shoeing and scientifically researched supplements, but these were not an option in antiquity. General practice dictates that horses working on hard, rocky ground – the terrain found in much of the Mediterranean and Near Eastern world – should be shod, but this option did not exist in the ancient world. Hyland correctly points out: ‘As the Romans [and Greeks] lacked iron horseshoes, it would be imperative for their horses,

particularly a military horse, to remain sound footed over extended periods.²⁶ On account of this it was necessary for a horse to have good, solid hooves if he was to be of any long-term use. The risk of hoof problems is apparent in Thucydides when he describes issues faced by the Athenian cavalry for 'As the cavalry rode out to Decelea every day to make attacks on the enemy or to patrol the country, the horses were lamed on the rough ground and by the continuous hard work to which they were put'.²⁷ Likewise, the importance of the correct hoof type for a particular environment is revealed by Xenophon who was taught 'to wrap the feet of the horses and the yoke-animals in small bags for any journeys through the snow, because without the bags they used to sink up to their bellies'.²⁸

Without human interference, hoof type is dictated by the environmental conditions in which the horse was bred and raised.²⁹ Horses from cool, damp climates tend to have wider, flatter hooves that help them to move on soft ground by providing a greater surface area to displace their weight. On the other hand, horses from hot, dry regions have small, hard hooves designed to withstand abrasive conditions and prevent the development of chips and cracks.³⁰ The hoof abrades on average a quarter to a half inch per month; but the thicker the horn is, the slower it will wear down. Thus, horses from rocky terrain should have thick horn, just as Virgil and Oppian describe.

THE LEGS

If a horse's hooves form the foundation of the animal, the legs are the framework. The length and shape of the leg, in conjunction with the hoof and shoulder, influence smoothness and efficiency of gait as well as the longevity of an equine's working life. The legs of a horse can tell us a lot about breeding, history and suitability for work as they are susceptible to a number of injuries, deformities and conformational faults. Much like the hoof, any weakness in the legs can affect the overall durability of a horse because 'a horse is as old as his legs'.³¹

At first glance, the legs of most horses appear to be fragile and spindly. A horse has unusually long legs for his size because he has evolved to stand on his toes – the hoof. Toes have very little

tendon and muscle mass, helping to create a leg that is lightweight for its size; this in turn allows a horse to accelerate rapidly. The ability to travel at a high rate of speed is an important survival skill for a prey animal living on the open plains but speed alone is not enough to ensure survival. A horse's legs must also be strong enough to withstand the concussion of galloping on rough terrain. To deal with this, the leg joints permit only forward and backward movement. The joints such as the stifle, hock and fetlock are constructed with grooves and flanges to stabilize the limbs and prevent them from twisting or flexing sideways. This allows the horse to have relatively strong legs without the added weight of muscle mass. The downside to this construction is that it leaves the legs susceptible to injury from transverse forces. Speed and endurance are further enhanced by the concentration of weight at the pivot point of the shoulders and hips. This placement allows the animal to move at high rates of speed while conserving energy. When a horse lifts his legs off the ground, the energy accelerates forward at the shoulder and hip, while at the same time slowing down the speed of the shoulder/hip swing. This allows the momentum of the heavier upper leg to transfer down to the lower leg. The result is maximum speed created from minimal energy output.³²

For a horse to remain sound throughout his working life the bones of the legs must be streamlined and dense. This means that the weight-bearing ability of a horse depends not on the overall size of the leg bones, but the density of the substance itself. When referring to the legs, the term 'bone' refers to a measurement of the circumference of the cannon bone below the knees and hocks.³³ The greater this circumference, the more weight a horse will be able to carry. This is why small ponies are often more capable of carrying a heavier load than a 17 hh thoroughbred. A common misconception about bone is that some breeds of horse have denser bone than others, but this is not the case. Rather, 'bone density is related to weight, not breed; the smaller the horse, the greater the chance that bone density will be normal; the larger the horse, the lower the bone density is likely to be'.³⁴ Bone is an incredibly strong material that can withstand significant amounts of force. In a healthy horse,

Bone loaded parallel to the long axis of the limb bones will bear a static load of 19,000 to 30,000 pounds per square inch (1330 to 2100 kg per square centimeter) ... The resistance of compact bone to shear stress (compressive stress applied at an angle) is 7,150 to 16,800 pounds per square inch (500 to 1,176 kg per square centimeter).³⁵

These numbers imply that a horse's legs should be extraordinarily strong. If this is the case, why are leg injuries so common? The answer lies in the way a horse is used. During any sort of strenuous work, the legs of a horse must withstand a number of forces. Any rapid change of speed or direction, not to mention the heavy impact of jumping causes tendons and ligaments to pull on the skeleton, altering the amount of force placed upon the bones, sometimes to a point that is above its limitations and 'when this point is reached – in bone as in any other material – damage or even catastrophic failure will occur'.³⁶

What do our ancient sources have to say about a perfect leg? Xenophon states that the pasterns should not be upright; this is sound advice. The pastern is composed of two bones that reach down into the foot.³⁷ These two bones, in conjunction with the fetlock, act to absorb the shock of concussion.³⁸ The length and angle of the pastern also influences smoothness of gait.³⁹ A long, sloping pastern masquerades as a desirable trait because it produces a more comfortable ride. This occurs because there is a greater length of bone to absorb impact, but such pasterns are structurally weak and often become swollen as a result of the strain placed on them. On the other hand, short and upright pasterns produce a stiff, uncomfortable gait and make a horse prone to concussive injuries.⁴⁰

The ancient texts also indicate that the cannon bone should be straight, slender and clean-cut with a measurement of good, dense bone. Xenophon quite correctly points out that a fleshy and varicose cannon is a cause for worry.⁴¹ What he is describing is a bowed tendon, a very serious injury.⁴² Hayes confirms Xenophon's remarks when he writes that the cannon should 'feel hard to the touch and free from any excess of soft tissues between it and the skin, or from enlargement from the effects of work or disease'.⁴³ Ideally, the cannon should look straight and wide



FIGURE 2.6 Sketches of the equine leg by Leonardo Da Vinci.

when viewed from the side, but narrow from the front. This design increases the solidity of the bone, creating strong, tough legs.⁴⁴ The length of the cannon bone, like the pastern, also influences a horse's gait. For a smoother, more efficient stride the

cannon should be shorter than the forearm.⁴⁵ A greater length of forearm increases muscle mass, which in turn helps to increase speed as stride length extends. Thus, the longer the leg, the greater the amount of ground covered with each stride; so, a long leg equals improved efficiency.⁴⁶ For increased durability, the legs should be straight. Indeed, they should appear to be 'rigorously parallel'.⁴⁷ When viewed from the front, an imaginary line should bisect the middle of the foreleg from the point of the shoulder to the toe; from the side, a straight line should drop from the point of elbow along the back of the leg to the fetlock.⁴⁸ Any inconsistencies in the straightness of the leg increase the risk of injury to the joints.

The forelegs of the horse carry 60–65 per cent of his weight. Clean sound limbs are of paramount importance if the animal is to be used for any kind of work. The forelimbs perform five functions: they support the weight of the animal, withstand the rigours of work, give stability to the body, aid in movement and act to lift the forehand for collection.⁴⁹ The hind legs should be slightly longer than the forelegs. The overall appearance of the hind limbs is different as they function to provide strong, forward propulsion. In order to do this, they must be straight, strong and well-muscled; especially through the stifle and gaskin. The hock joint is integral to the length of stride and propulsive power. As with the forelegs, the cannons should be shorter than the upper portion of the leg with a good measure of bone.⁵⁰ When viewed from the back, a straight line should bisect the middle of the limb from the point of the buttock to the fetlock; from the side, a straight line should fall from the point of the buttock to the point of the hock and along the back of the cannon to the fetlock. Once again, any deviation in straightness will affect the soundness and efficiency of the limbs.⁵¹

Given the terrain over which they were used – particularly the warhorse and hunter – strong, sound legs were of great importance. These horses were expected to travel long distances over rugged ground. A racehorse required sound legs to withstand constant work at speed and to increase his stride efficiency. Many of the breakdowns that happen on the racetrack today occur because thoroughbred legs are becoming too fragile to bear the mass and force placed on them.

SHOULDER AND CHEST

The shoulders of a horse play an important part in determining an animal's athleticism. As discussed above, the forelimbs of the horse carry 60–65 per cent of his body weight. The slope/angle of the shoulders in turn influences the degree of action, movement and extension in the front legs. The more oblique the angle of the shoulder the greater will be the freedom of movement through the forepart of the horse.⁵² A long, sloping shoulder is termed 'well-laid back' and ideally will be about 45 degrees. The angle of the shoulder should closely match the angle of the pastern in the legs. The primary function of the shoulder is to control the movement of the forelegs and the swing of the forearm. This consequently affects the overall length of stride. The longer and smoother the stride is, the more efficient are the gaits of the horse.⁵³ This does not, however, mean the long, sloping shoulder is ideal for all types of horses. Rather, the shoulder should be suited to the kind of work the horse is required to perform. A successful racehorse will have a shoulder blade of considerable length and the shoulder region will be lightly muscled as this encourages speed and serves to lighten the weight of the forehand. The hunter or cross-country horse should have a long, sloping shoulder like the racehorse, but with a much greater amount of muscle. The sloping shoulder will help the horse lift his front end up over jumps and uneven terrain, while the muscle mass helps absorb the impact of landing after an obstacle or moving at speed over broken ground. The draft horse – particularly the heavier types – have a shorter, straighter shoulder. These horses do not require the flashy, expressive gaits of the ridden horse. Instead they move with short, careful strides that have very little suspension in their action.⁵⁴

The humerus, in conjunction with the shoulder, also plays a key role in the action of the forelimbs. The placement of the humerus in a ball and socket joint permits lateral movement through the legs. Thus, the humerus helps to control length and smoothness of stride, as well as the overall balance and athleticism of a horse through lateral motion: the ability to move laterally can be just as important as speed and forward momentum/impulsion. The length and angle of the humerus affects movement in four ways:

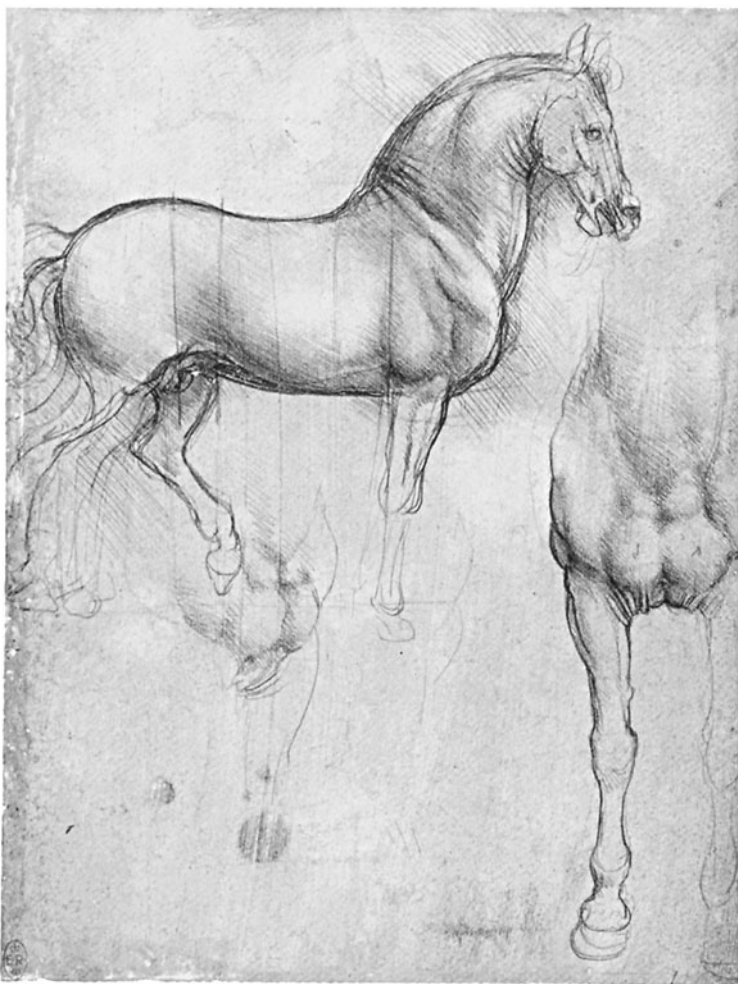


FIGURE 2.7 Sketches of an equine with emphasis on the chest by Leonardo Da Vinci.

1. The longer the humerus, the more 'scopey' the horse's gait since swinging a long humerus results in a greater arc at the elbow end of the bone.
2. The shorter the humerus, the more choppy the horse's gaits will be. A horse with a short humerus moves with

- correspondingly short, stiff strides, has difficulty with lateral work and is frequently dangerous to jump.
3. The steeper the resting angle of the humerus, the higher the horse can raise his knees.
 4. The more horizontal the resting angle of the humerus, the less natural ability a horse will have for high action or tight folding. A horizontally oriented humerus guarantees that the horse will be a 'grass clipper'.⁵⁵

THE TRUNK AND BACK

The trunk accounts for a significant portion of an equine's total body mass. The majority of this weight is not skeletal; it is made up of the internal organs of the trunk and abdominal cavity. This substantial amount of weight is freely suspended from the spinal column of the horse.⁵⁶ The equine spine has changed dramatically through the stages of the evolutionary process. *Hyracotherium* had an arched spine with loosely articulated vertebrae, giving him a greater degree of side-to-side movement through his spine and allowing the use of twisting, slinky movements. He could also accelerate rapidly and make sudden changes of direction at speed. These were all essential survival skills for a solitary little herbivore in a forest habitat. When the *Equidae* moved onto the open steppe, the backbone consequently became flatter and stiffer. This meant they could no longer perform the agile, twisty movements of their forest-dwelling ancestors, but such actions offered no advantage on the grasslands. Instead, the stiff, flat spine allowed for longer limbs and a stronger loin, features that translated directly into a significant increase in speed.⁵⁷

The length of the back influences not only the aesthetic appearance of a horse, but also his ability to bear weight. The back proper is the region of the spine found between the withers and the hips. Ideally, a horse will be what is termed 'close-coupled'. Such an animal has a relatively short back in relation to the overall size of his body. This kind of back places the limbs closer together, which in turn increases weight-carrying ability and athleticism because the horse is better able to collect his body by bringing his hind end underneath him. An excessively short back, however, is not desirable as it suggests a lack of flexibility through the spine

and trunk. The long back tends to be weak and less able to bear weight.⁵⁸

The back should appear to be level between the withers and the croup. Any convexity to this line indicates the presence of a roach back. The horse with a roach back has weak muscles along his spine and will be lacking in strength. The concave or 'sway' back is occasionally a conformational fault present from birth, but more commonly is the result of wear and tear causing the ligaments of the spine to lengthen and loosen. The long-backed horse is more prone to become sway-backed over time than the close-coupled or short-backed animal.⁵⁹ The close-coupled horse has a short, muscular back and well-developed loins. This type of conformation allows the animal to contract the *longissimus* muscle along the spine.⁶⁰

The *M. longissimus dorsi* (long back muscle) is one of the strongest and most important muscles in the equine body. This muscle extends the length of the back from the neck to the sacrum and ilium running along both sides of the lumbar and thoracic spine. The *longissimus* muscle is of great importance for the propulsive power of the horse. Although the *longissimus* muscle lies along the spine, it actually has nothing to do with the animal's weight-bearing ability. Rather, the contraction of the *longissimus* muscles allows the horse to bring his hind end well underneath his body, at the same time lightning and lifting the forehand. This permits the horse to collect and extend his movement in a balanced, free manner.⁶¹ A correct, well-developed *longissimus* muscle creates an athletic, very rideable mount. With this in mind, we should re-evaluate the concept of the 'double-back' mentioned in our five accounts of the ideal horse.⁶² The 'double-back' is generally believed to refer to a recessed spine created by the build-up of muscle or fat on either side of the vertebrae. This recessed spine was considered a favourable trait because it offered the bareback rider a greater degree of comfort. I agree with the idea that the double-back provided a more comfortable ride, but not because it provided a softer seat. I think the double-back refers to a horse with a well-developed *longissimus* muscle. While this does provide a degree of comfort in the sense that a well-developed back prevents the rider from sitting directly on the spinal column, it more importantly places the rider in a secure seat on a horse made comfortable and rideable by his ability to move in a balanced and controlled way as the developed *longissimus*

muscle – the ‘topline’ – is indicative of a horse who has been regularly worked in a physiologically correct way.

HINDQUARTERS

The hindquarters act as the engine of the horse. This is where impulsion and balance originate. The shape of the hindquarters dictates, to a large degree, what sort of job that animal is best suited for as it indicates what kind of power and movement the horse is capable of.⁶³ The hindquarters refer not just to the rump of the horse, but the entire hind-end structure, including the hind legs. Because of the importance the hindquarters play in the overall movement and balance of the animal, they are often considered to be one of the key elements to assess in equine conformation.⁶⁴ The hindquarters begin at the lumbosacral joint, which joins the hind-end to the rest of the equine body and is located where the loin meets the croup. This is a small joint, less than six square inches, but it controls all the energy produced in the hind limbs. The shorter the loin area is, the more powerful the horse. A horse with a short loin is ‘close-coupled’. As we saw above, this is an ideal conformational feature because:

A horse that is *close coupled*, with a short loin area, usually has strong, short muscles and can tense the spine more readily to raise and propel the front quarters and this is more easily collected. As the back muscles stiffen his spine and the loin muscles contract to pull the hindquarters farther underneath himself, he can lift his front end.⁶⁵

Remember, the resting horse carries 60–65 per cent of his weight on his forelimbs. In order to move in an athletic and efficient way, he must bring his hindquarters under him to shift his weight back. This is achieved through the raising and flexing of the lumbosacral joint, and when done correctly, allows the horse to achieve collection. When a horse coils his lumbosacral joint, his hindquarters shift farther underneath him, his spine lifts up, the *longissimus* muscle contracts and his neck and head are raised up. Collection is what almost all riders work towards as the horse moving in a collected frame is much more balanced and thus, has

the potential for a longer, sounder working life. A collected horse is producing contained energy or impulsion, which can be used or released by the rider into forward, lateral or rearward movement.

The horse's rump should be large, but in proportion with the overall size of the animal. It should appear almost square when viewed from behind, and slightly rounded when viewed from the side. The square shape is created by the width of the hips; moderately wide hips are desirable as they allow for the creation of greater power and allow the hind legs to swing forward properly. The size of the pelvis varies between horses; a wide pelvis is ideal in the broodmare, as it allows for easier birthing. In most horses, however, it is the length of the pelvis that is important. The longer the pelvis, the more energy and swing the hind legs produce. A long, sloping pelvis is especially desirable in the racehorse. The shape of the rump is determined by the size of the hips and pelvis, as well as the large muscles that cover these bones. If the rump is too large and bulgy, the horse will lack stamina as the energy produced by the hindquarters becomes less efficient. Likewise, narrow hindquarters indicate a horse that lacks the ability to produce speed or power.⁶⁶

The hind legs are longer than the front, and should be capable of much more flexion. As with the front limbs, the ideal hind legs give an impression of straightness; a line dropped from the point of the buttocks should run along the hock and cannon bones.⁶⁷ The hind legs are made up of what is termed a 'stay system'. This system serves to control the action and movement of the hind end, allowing it to function in a controlled, regular manner. The stay system is made up of tendons and tendonized muscles that basically work like a set of cables. This system governs the hind end in two basic ways:

Whatever the stifle does, the hock must do. If the stifle folds, the hock must fold; if the stifle opens, the hock must open. Whatever the loins do, the stifle must follow. If the loins coil, the hock must fold; if the loins are flattened and extended, the stifle must open.⁶⁸

The upper part of the leg, from the point of the hip to the hock should be long and slightly sloping. The hocks must be clean, large

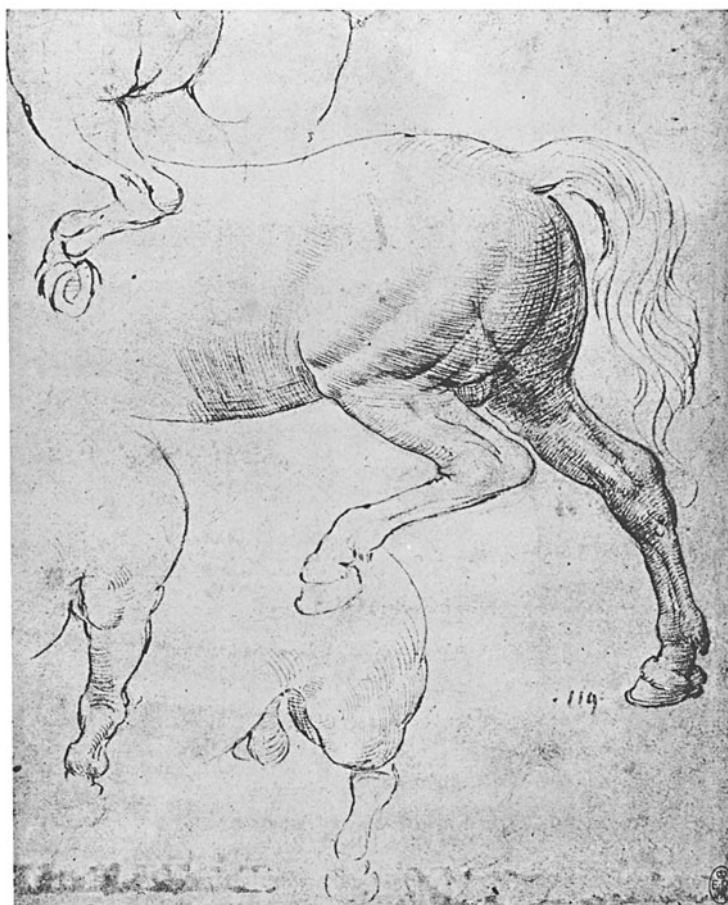


FIGURE 2.8 Sketches of the equine hind end by Leonardo Da Vinci.

and square. If the hocks appear angled, asymmetrical or off-set when viewed from behind, the strength and stability of the lower limb is suspect. The rear cannons should be short and straight, and the hock joint 'well let down' – as close to the ground as possible. The rear cannons should be short and straight, and the hock joint 'well let down' – as close to the ground as possible. As with the fore limbs, the pastern should be short and slope on a 45-degree angle.⁶⁹ Unlike the front legs, the toes of the hind leg should point

out slightly, as should the stifle joint. This slight angle at the top and bottom of the leg allows the horse to reach farther forward under his body when the stifle is engaged.⁷⁰

NECK

The length and shape of a horse's neck are one of the most aesthetically apparent parts of equine conformation. The neck can make a horse appear athletic and elegant, or scrawny and gangly. In actuality, this is a very important part of equine conformation, and the shape of a neck has a significant influence on the work the horse is capable of doing. Every equine neck is made up of seven vertebrae; no matter what length or shape it is. Longer necks have longer vertebrae and shorter necks have shorter vertebrae. These vertebrae, unlike those of the back, are not attached to ribs or any other bones making the neck the most flexible appendage on the equine body.⁷¹ Because of this flexibility and its placement on the shoulders, the neck acts as a balancing point or level for the horse.⁷² The positioning of the neck on the shoulders will either aid or hinder the ability of a horse to collect; the lower the placement of the neck, the more a horse will move on his forehand, in a 'downhill' frame which is the opposite of the collected frame and gives the rider a feeling of being constantly pulled forward out of balance. If the neck is placed higher on the shoulder, the horse typically finds it easier to raise his neck and poll when his weight shifts back and the lumbosacral joint flexes.⁷³ A long, powerful muscle, the *brachiocephalic* muscle, runs the length of the neck from the base of the ears and into the *deltoid* muscle of the shoulder. The contraction and release of this muscle aids in stride length by influencing the freedom of movement in the shoulder and humerus. The size and shape of the *brachiocephalic* muscle is an indication of fitness and correct training, as it develops in accordance with them. If a horse is consistently ridden incorrectly, this muscle will be weak and underdeveloped.⁷⁴

Ideally, as in all other aspects of equine conformation, the length of the neck should be in proportion to the rest of the body:

Measured from poll to withers, the neck of a riding horse should be proportional to the rest of his body: about

one-third of the horse's overall length. It should be fairly long and slender, slightly arched along its topline, and relatively straight on its underside.⁷⁵

If the neck is proportionally too long for the body, the horse will have difficulty balancing and collecting himself because his centre of gravity has been shifted forwards. Likewise, the neck will be less flexible due to the length of the vertebrae and the resulting distance between each joint. Similarly, a too-short neck will also affect the ability of a horse to collect and bend. The short neck is typically bulky and thick, adding weight to the forequarters of the horse and making it more difficult for the animal to balance and collect himself. The horse with a short neck will often have a short, upright shoulder as well, the combination of both results in a shorter stride; this equates less efficient movement and a greater amount of stress on his legs and body over time.⁷⁶

HEAD

The head is the most prominent feature of equine conformation: it is the first thing we notice when we look at a horse. The shape and size of the head, as well as the components found on it – eyes, ears, mouth, nostrils – have a great influence on whether a horse is perceived as beautiful or not. Our perception or definition of the 'beautiful' equine head has changed over time and between cultures. As we shall see in the analysis of equine types later in this book, the ideal shape of the head was not uniform in the ancient world. As Bennett states:

Over time, points of view have changed greatly and so have peoples' preferences for the shape of a horse's head. It is possible, through the process of selective breeding, to 'blueprint' many different kinds of heads, all of which can be considered good.⁷⁷

So what makes a good head? As with many other aspects of equine conformation, it is all in the bones and angles. First is the head/neck angle: the angle at which the top vertebrae of the

neck – the atlas – is attached to the axis – the second vertebrae – and the skull. This angle will influence the animal's ability to flex his poll, which enables him to collect himself into balance. If this angle is abrupt, the horse may have trouble breathing when he exerts himself. This is due to excess fleshiness at the throatlatch where the jowls and neck meet.⁷⁸ A clean, open throatlatch is ideal as it better enables the horse to swallow, breathe and flex through his poll. The head can be convex, straight or concave in profile, but most importantly, it should be in proportion to the overall size of the horse. The head should not be longer than the neck. A head that is too small or too large will, as with the neck, affect the horse's ability to balance himself. A too-small head does not serve as an effective counter-balance against the hindquarters. It also does not allow space for large, strong teeth and sufficiently large nasal passages, thereby hindering the animal's ability to eat and breathe properly. A too-large head is heavy and places excess weight on the forehead of the horse, causing him to move 'downhill' and thus putting extra strain on his front legs. The large-headed horse finds it difficult to raise his head and neck to work in a collected frame.⁷⁹

The jawline should be clean and broad, as ample space between the jawbones is necessary for the respiratory system to work effectively.⁸⁰ A broad forehead is desirable, no matter what profile the head has, because it increases the animal's range of vision. Traditionally, the wide forehead has been associated with a larger brain and greater intelligence, resulting in an animal that is easier to train and work with; the narrow forehead is typically associated with animals that are ornery/stubborn and less intelligent. A wide forehead correlates with a wider poll and throatlatch, both of which enable the horse to flex and soften into the rider's hands through the reins.⁸¹

The equine face is incredibly animated. It can tell us how the animal is feeling: if he is tired, or excited; relaxed, anxious or frightened; in pain or feeling in fine fettle. The eyes are the most expressive feature of the horse's head. They should be large, spaced wide apart and placed on the side of the head. This is not just for aesthetic preference, but also allows the horse a wide range of vision; a horse with small 'pig eyes' has a narrower range of vision. This explains why the horse with large, widely spaced

eyes is considered easier to work with, while the pig-eyed animal is traditionally thought to be mean and stubborn. In reality, the pig-eyed horse does not see as clearly and is more easily startled.⁸² Large, well-shaped nostrils are essential as the horse can only breathe through his nostrils. This especially true in animals that are expected to work at speed, as they must be able to inhale and exhale sufficient amounts of air. The ideal nostril is large, open and thin as this makes the nostril very elastic, allowing it to expand and contract easily.⁸³ If the nostrils are too small and thick, the animal will have difficulty catching his breath when exerting himself.⁸⁴ The shape and size of the ears do not affect the overall fitness or athleticism of the horse; however, from an aesthetic view, they should be in proportion to the rest of the animal. The ears tell us where the horse's attention is, as well as his mood.⁸⁵

CONCLUSION

Conformation is a consideration of the utmost importance when determining what sort of work a horse is cut out for. It is more than just simple aesthetics or personal perceptions of beauty. Correct conformation is essential if a horse is to have any sort of consistent working life. Minor conformational defects can be overcome by an equine's willingness to learn and try – what horsemen call 'heart' – but the basic physical building blocks must be present. To expect a horse to perform a task for which his body is not at all suited is courting disaster. This necessity of correct conformation was just as important in antiquity as it is today. I expect that one would not want to be mounted on an unsound animal while about to ride into battle. What I think is of key importance in the study of ancient equine types is that the basics of correct equine conformation remain the same the world over; no matter what environment a horse comes from good overall conformation is a necessity of survival. Where regional types start to appear is in nuanced differences: size of body, muscle mass, length of leg, shape of the head and so on. The Nesaean horse and the Mediterranean horse look quite different from each other in their overall appearance, but the basic building blocks of conformation are the same. Likewise, a Shetland pony,

Thoroughbred and Shire are three very different examples of the modern equine, but once again, the basis of their conformation is very similar. This is because, at the root of it, all horses are designed for the same thing: to survive as prey animals on the open grasslands. Any differences in size and shape are simply a response to specific environmental conditions.

CHAPTER 3

PREHISTORIC HORSES

THE ANCESTRAL HORSES

The horse died out in North and South America around 10,000 BCE, but continued to exist in a wild state in Eurasia. These wild horses were nothing like the pampered pets and athletes of today; they were tough, hardy animals with appearance and behaviour dictated by environmental conditions and influences. At this point in time the only interaction between horses and humans was that of predator and prey. These early horses are generally referred to as the 'Ancestral Horses' as they laid the basis from which all of our domestic horses developed. Clutton-Brock writes:

The early writers on the history of the horse assumed that because, since ancient times, there have been different forms of domestic horses, with small stocky ponies in the north, heavy horses in middle Europe, and the Arab in western Asia and Egypt, these must have come from ancestral races.¹

The ancestral equines are further categorized into types based on appearance and geographical location. Skeletal remains, artistic representations and 'native' breeds provide evidence for these types.

Sanson, a French zoologist, produced one of the earliest classification systems for our ancestral horses. He used skull shape to divide horses into two groups: long-headed and short-headed. The long-headed groups contained four sub-groups of

heavy horses, while the small-headed group comprised three light horse types: African, Asiatic and Irish, as well as one heavy type. These eight sub-types he declared to be the ancestors of all domestic horses.² The names assigned to Sanson's types are: *Equus caballus asiaticus*, *Equus caballus africanus*, *Equus caballus germanicus*, *Equus caballus frisius*, *Equus caballus belgicus*, *Equus caballus britannicus*, *Equus caballus hibernicus*, and *Equus caballus sequanus*.³ Pietrement followed up on Sanson's work in 1883. Pietrement agreed with Sanson's six European types (*germanicus*, *frisius*, *belgicus*, *britannicus*, *hibernicus* and *sequanus*), but disagreed with his designation of *Equus caballus asiaticus* and *Equus caballus africanus*. According to Pietrement both types are Asiatic in origin. Pietrement agreed with Sanson that *Equus caballus asiaticus* originated in Central Asia, further stating that it was domesticated by the Aryans and thus gives it the name *Equus caballus aryanus*. According to Pietrement this horse had a broad, flat face, rectangular profile with a wide forehead, expressive eyes and small ears. It had a broad chest and almost horizontal croup.⁴ Pietrement does not agree with Sanson's designation of *Equus caballus africanus*; he writes:

This last oriental race is most generally given the name Dongolawi or Nubian, because modern travelers first reported them in a compact mass in the Province of Dongola, in Nubia, it is of course on account of this consideration that M Sanson was keen to declare 'It [*Equus caballus africanus*] originated in the Northeast of Africa, probably Nubia.' But other documents allude to the fact that this race originated in Mongolia, where it was domesticated by Mongolian or Tartar-Finnoises peoples; and as a result we give it the name *Equus caballus mongolicus*.⁵

This horse is described as having an ox or ram's head and a narrow, angular body, while its longer limbs made it more suitable as a riding horse than *Equus caballus asiaticus/aryanus*.

Stegman determined that there were five ancestral wild types, all of which were later domesticated and thus provided the foundation for our modern horses. His five types are:

1. *Equus europaeus*: the Northern European mountain horse
2. *Equus robustus*: the European Forest horse
3. *Equus gmelini*: The tarpan
4. *Equus orientalis*: The Iranian Mountain horse
5. *Equus przewalskii*: The Mongolian Steppe horse

To these five types Goodall adds a sixth: *Equus stenonius*, the Spanish/Iberian horse. According to Stegmann and Goodall, *Equus robustus* was the origin of all 'heavy' horses.⁶ *Equus gmelini* provided the foundation for all Eastern European types of horse. *Equus orientalis* was the basis for the desert types of the Near East. *Equus przewalskii* founded the domesticated Mongolian horse. The descendants of *Equus stenonius* were the horses of Iberia and later, North Africa.⁷ Goodall sums up the theory thus:

There existed in parts of Europe and Asia the following strains of horses:

Equus przewalskii: The Asiatic wild horse, 12–14hh

Equus gmelini: The Tarpan, 13hh

Equus europaeus: The Exmoor pony etc., 11–12hh

Equus robustus: Kleppe, Dole, Con, 14.2hh

Equus orientalis: Arabian type, Caspian type

Equus stenonius: The wild horse of southern Spain and North Africa: Berber, Sorraia etc.⁸

Within Europe, Goodall further distinguishes two strains within the six types: the European strain of *Equus przewalskii* and the tarpan (*Equus gmelini*). She suggests that *Equus europaeus* resulted from a cross between *Equus przewalskii* and *Equus gmelini*, hence the unique and primitive colouring of the Exmoor pony; while *Equus gmelini* alone led to the development of the Eastern and Central European types, as well as *Equus stenonius* in the form of the Sorraia horse.⁹

Anderson offers a much more simplified classification system, distinguishing three primary types:

1. A breed from Northern Europe and the Western Steppe, small but spirited, with fine legs and head, and an elegantly set-on tail.

2. Przewalski's horse, distinguished by its heavy build, low head carriage, and generally coarse appearance.
3. A West European 'cold-blooded' or 'forest' breed, whose blood may run in many of the heavier horses of the present day.¹⁰

Another three-type theory was set forth by Ridgeway in his substantial volume *The Origin and Breeding of the Thoroughbred Horse*. It must, however, be kept in mind that the ultimate purpose of his work is to show that North Africa (particularly Libya) was the original home of the horse. Ridgeway gives descriptions of three types of ancient horse. They are as follows:

1. *Equus caballus*: Ridgeway writes that *Equus caballus* was distinguished by 'the tail being covered with long hairs from its base to its end, and by having chestnuts on the inner sides of its hind-legs, as well as its forelegs'.¹¹ He goes on to point out that this description no longer holds true on account of the research conducted by Professor Ewart. It was long popular to use chestnuts (bony growths on the inside of the legs) to distinguish 'primitive' horse types, as not all horses have a chestnut on each leg. This argument found support amongst the proponents of the antiquity of the Arab horse, as Arabian-type equids frequently have chestnuts only on their front legs. Ridgeway points out that the presence of four chestnuts no longer distinguishes *Equus caballus* since Ewart's Celtic pony and the Przewalski horse also have four.¹²
2. *Equus caballus celticus*: This type was created by Ewart and he believed it to be a distinct type of equid:

It is a true pony, not a dwarf horse; it has a small head, with prominent eyes, small ears, a heavy mane, slender limbs, small joints, and well-formed small hoofs. It has similar characteristics to those Arabs that have no ergots, and at the most only minute hock callosities, but with the essential difference that instead of having long hair up to near the root of the tail, the hair on the upper part of the tail forms a fringe or taillock.¹³

This is a characteristic found on several ponies of the British Isles including the Exmoor, Connemara and the ponies of the Hebrides, as well as those of the Faeroe Islands. Ewart thought it was 'conceivable that the Celtic pony in its present form never existed in the east, but that it is a modified descendant of a small horse, which left the ancestral home in Central Asia and reached Europe long before the arrival of Neolithic man'. It is further suggested that pure representatives of *Equus caballus celticus* still existed in northern Iceland and the Faeroe Islands at the end of the nineteenth century.

3. *Equus przewalski poliakoff*: the Przewalski horse was described by Poliakoff in 1881. This equine

has callosities on its hind legs and its hoofs are like that of *Equus caballus*, but it differs from the latter in having a short, erect mane, no forelock, and by the tail, on which the long hairs only begin at the lower third of the dock instead of at the root. The ears are of moderate size, and Poliakoff maintained it was a distinct species.¹⁴

Before Poliakoff's work with the Przewalski horse it was commonly held that no true wild horses existed anywhere in the world. Przewalski himself stated:

Whatever may be the lucubrations of naturalists in their cabinets it does not appear that the Tahtar or even the Cossack nations have any doubt upon the subject, for they assert that they can distinguish a feral breed from the wild by many tokens; and naming the former *Takja* and *Muzin*, denominate the real wild horse *Tarpan* and *Tarpani*.¹⁵

Ridgeway, on the other hand, concludes that:

1. The Przewalski horse is nothing more than the Tarpan of the older writers; 2. That if pure Tarpans still survive they are those of the Zagan-norr Lake, and 3. That the divergence in colour of these animals which characterizes those found in the middle district, and in a still greater degree those of the most westerly area, is to be ascribed to their being mixed with

feral horses rather than to any variation due to environment and any other natural causes.¹⁶

Dossenbach, however, returns to a theory of four types based on geographical regions; a northern moor and tundra horse; a larger tundra horse; a North African horse and a Near Eastern horse. The two northern horses are described as sturdy, broad of body with a tough digestive system. Dossenbach believes that the smaller of the two is represented today by the Exmoor pony and many of the other 'native' British ponies. The later northern horse was *Equus robustus*, the founder of all our 'cold-blooded' breeds, today best represented by the Norwegian Fjord. The two southern types were light and graceful in build. The North African type came from the mountains while the Near Eastern type originated in the desert.¹⁷

Ebhardt also followed a four-type system, but his differed in that it was based primarily on social behaviour as opposed to physical characteristics. He observed the behaviour of domestic herds of various breeds and from these he concluded that our domestic horses are descended from four ancestral types: two pony types and two horse types. Ebhardt's classification is still much favoured today.

Equine Type I: The northern pony. Type I had a far-ranging habitat, stretching from the Atlantic coast to the Pontic Steppe. This pony was approximately 12hh with a thick, water-resistant coat and dark colouration. It had

a broad forehead, long head and narrow muzzle, large nostrils, big round eyes, a convex or straight profile, and small ears. The teeth were high crowned with thick enamel, appropriate for the kind of food in their main habitat. They had a heavy medium to short, upright ewe neck, strong wide body, with the rump higher than the withers, wide chest, short, somewhat concave back, and a wide and sloping rump with a low-set tail. Short legs with short, broad cannon bones, short pasterns and strong round hooves that gave them the surefootedness necessary in the area where they lived.¹⁸

This pony type is today best represented by the Exmoor pony of Britain.

Equine Type II: The 'large' northern horse, standing 14.2–15hh. This was a tundra horse, living on the steppes of China and Mongolia, with a yellow-dun coat, mealy markings and black legs. The coat was thick and multi-layered as protected against freezing winter temperatures. This pony had

a big heavy head, a rather short nose, a narrow flat forehead, a large, wide muzzle with a beard, and large nostrils like Type I. It had small teeth, small ears and a convex profile. The wide, strong, long body was divided from the low, heavy, short neck by straight shoulders. The rump was higher than the withers. Strong, relatively short legs, short, flat cannon bones, and short pasterns ended in large, round wide hooves and feathered fetlocks.

The best representation of Type II is the Przewalski horse.¹⁹

Equine Type III: Type III was on average 15.2hh. It moved into Asia from Europe ending up in the southern Caspian, Iran and Turkestan. Type III had

a long head with a small narrow forehead and convex profile, a fine delicate muzzle, straight jaw, small teeth, long ears and eyes placed higher on the head, a long neck and clean throatlatch. The prominent withers, higher than the rump, reached far onto a medium to long back, long inclined shoulders, narrow chest and body, and sloping croup. Long legs, cannon bones and pasterns ended in oval, medium-shaped hooves with no feathering. These characteristics made Type III capable of moving with collection, placing the hind legs under the body mass and the nose vertically, the ideal requirements for a good riding horse. The coat was dun or grullo with a darker face.

This type is today represented by the Akhal-Teke and the Turanian sub-types.²⁰

Equine Type IV: This was a small horse, standing under 13hh. Its habitat stretched across North Africa, the Near East and as far north as the Pontic Steppe. Type IV had

a small head, medium-to-broad forehead, short broad nose, dished face, round eyes, small ears, small muzzle, straight jaw, and low crowned teeth. The short back had withers higher than the croup and a short horizontal rump with the tail set high, a long slender neck and long shoulders. The fine legs, with long round cannon bones, ended in small oval hooves with no feathering, it may have lacked chestnuts on the hind legs.

The Caspian horse is the closest living representative to the Type IV horse.²¹

So where does this leave us with respect to the non-domesticated ancestors of our ancient equines? I think it is clear from the above summaries that we can classify these ancestral equids based on geographical locations. Further, we can surmise that physical appearance was the result of adaptations to environmental conditions. Finally, we can look at where equine populations existed at the time of domestication and what these animals looked like. Based on this conclusion, I think the ancestral horses can be categorized into four definite types:

1. Type 1: A Northern European pony. This is a true pony type, short and robust with sturdy legs and a tough digestive system. This pony evolved to thrive in the dense forests and wet moors of Northern Europe. These animals ate a mixed diet, of which grasses composed only a small portion. The majority of their diet, especially in late autumn and throughout the winter, was of the browsing type: twigs, leaves and bark. Thus, these animals developed digestive mechanisms that allowed them to efficiently process both a grazing and browsing diet. During the cold, wet winter it was essential that these horses used as little energy as possible in order to conserve fat stores. This meant that these ponies were not, aside from the basic flight instincts of the horse, a particularly high-strung animal.
2. Type 2: A Northern Steppe horse, adapted to live on the open grasslands. The Northern Steppe horse, which was later domesticated and became the mount of the Central Asian nomad, ranged across the open grasslands of the steppe belt. While ideally suited to support large herds of horses in the

summer and fall months, the steppe grasslands are harsh and unforgiving in the winter. Thus a small, hardy horse developed to withstand the extremes of climate frequently found there. This animal was not elegant or flashy in appearance. He adapted to survive on very little food or water through the winter months.

3. Type 3: A Southern Steppe horse, adapted to survive in the more arid desert environment found in the southerly reaches of the Eurasian Steppe. This was a true desert horse: slender and spare in appearance, with no excess fleshiness or bulky muscles. These animals were capable of living on meager amounts of food and water. Their bodies were long and lean as well as light and agile for ease of movement across soft, sandy terrain.
4. Type 4: An Iberian/Mediterranean horse, adapted to life in a rocky, continental environment. These horses congregated in the more temperate, moist landscape of northern Iberia. They were suited to live in both the mountains and the alluvial river plains. These were moderately sized animals with a diet made up primarily of grazing, but those living farther up in the hills and mountains were capable of browsing as well. Their legs were of moderate length and sturdy, with hard feet and dense cannon bones. They were likely base-narrow to a degree to enable them to traverse mountain trails easily. They were not as lean as a true desert horse, as they needed to maintain bulk and a dense coat during the damp winter months, while also being able to survive the arid heat of a Mediterranean summer.

These four ancestral types were the starting point from which the horse types of antiquity developed. As we shall see the basic form and adaptations found in these ancestral equines did not change very much during the period covered in the present work.

CASE STUDY ONE: THE EXMOOR PONY

The British Isles are home to a number of native ponies, which include the Fell, Dartmoor, New Forest and Welsh. These ponies are referred to as the Mountain and Moorland Ponies – a nod to

the regions that produced them. The British ponies are typically elegant, tough, athletic and strong. They can all be classified as a true pony type. Most of these ponies, however, are not truly native to the island, but were introduced during antiquity and the middle ages: for example, the Fell pony was the result of imported Roman horses from Friesland crossing with local British ponies.²² The oldest of the British ponies is the Exmoor. The relative isolation of the moorlands that are home to the Exmoor pony has served to protect the purity of this ancient equine:

In every other part of Britain, outside equine blood was introduced to a degree that drastically altered the appearance of the British Hill Pony. On Exmoor that did not happen. Most of the changes to ponies elsewhere in Britain took place in the last few hundred years. These changes can be linked to the influences of major trade routes and ports introducing new ideas and new animals, or the influence of landowners doing the same.

Exmoor, however, until very recently, was a forgotten place with no such routes across it or large ports nearby, and few landowners feature in its history. It is situated in the Southwest of Britain spanning the borders of Devon and Somerset, its northern boundary being the high cliffs of the Bristol Channel. It is an area of high moorland divided by steep wooded valleys and fragmented by farmland. The moorland provides a varied diet of grasses, rushes, heather, and gorse . . . The area is subject to very wet winters, cold temperatures, and driving winds. It is, in effect, a social island within the British Isles, and because of this, the original type survived.²³

The Exmoor is the pony type most closely linked with the ancestral Northern European pony. The primitive pony shared many traits with the Exmoor. Most notably:

The Exmoor is the only living breed to show jaw development similar to that found in fossilized bones in North America, also showing the beginning development of a seventh molar, found in no other living breed or horse or pony.²⁴

It was because of the hostile Arctic habitat that the ponies began to develop an extra molar, which allowed them to survive on a diet of tough, coarse vegetation.²⁵ Numerous Pleistocene horse remains have been found in the permafrost of the North American and Siberian Arctic. Their appearance is that of a medium-sized, robust animal ranging in colour from dark chocolate brown to chestnut.²⁶ If the prehistoric Exmoor type did originate in the Arctic, then he gradually adapted to environmental changes as he migrated westwards.²⁷ Before 10,000 BCE horse populations could move between continental Europe and the British Isles. When the English Channel formed, however, the equine population became isolated on the isles and the only interaction with any continental equine populations would have been through the agency of humans.²⁸

The Exmoor is believed to be the closest living relative to the British Hill pony: the prehistoric horse of the British Isles. The British Hill pony evolved from its plains – dwelling relatives by adapting to live on the hilly ground of the moors. To thrive in this environment the physical form of the pony had to change; combining the speed and stamina of the plains horse with the agility and swiftness required to flee predators over uneven terrain. Speed, an expert on the British Hill pony and the Exmoor, described the physical qualities of the mountain pony thus:

They were and are unspecialized and adaptable to almost any environment. Their teeth, although of not quite the degree of hypsodonty of the steppe and tundra horses, being nevertheless suitable for thirty years of efficient grazing on poor rough grass. The curvature of their jaw ensures that even in old age the incisors form a cup and are able to bite cleanly. Their limbs are adapted for activity on rough ground, the scapula and humerus having the same degree of inclination, which ensures balance, agility and sure-footedness, qualities so necessary on mountains. In the hind-limbs the femur slopes downward and forward from the hip in the same degree of inclination as the tibia slopes backward to the hock. This means that the hindquarters, although rounded and muscular, appear short. The sacrum continues the line of the lumbar vertebrae and therefore the tail is low-set. The chest is

wide with well sprung ribs. All these characteristics are essential for an animal living on high, rough ground where really fast bursts of speed either up or downhill may be necessary.²⁹

The British Hill pony is an excellent example of how the horse adapted to suit a particular environment. Although a mountain habitat might not seem like ideal living conditions it did offer some advantages over the more traditional grassland habitat. Living in the hills allowed the ponies to be able to move to different elevations depending on climatic conditions. Humans also had little interest in trying to cultivate the highlands – the lowlands were the preferred farming terrain. Thus, the Hill pony avoided much of the pressure placed on its lowland dwelling relatives by encroaching human habitation. Indeed more horses might have moved into the hills to avoid the human threat.³⁰

There is the argument that the British Hill pony went extinct in the Mesolithic period. This would mean that any of the 'native' breeds existing today are the descendants of horses brought over to the British Isles from the mainland. If such a reintroduction occurred, it is thought to have taken place during the Bronze Age. Indeed 'Once the land-bridge between England and the Continent had sunk under the sea, they could only be reintroduced in ships and no Neolithic boat could transport horses alive.'³¹ The argument that horses were transported during the Bronze Age from the continent to the British Isles predisposes the notion that these horses must have been domesticated as the idea of trying to bring wild horses across the Channel is ridiculous in the extreme! Undoubtedly the Celts who migrated to Britain from the Continent did import their local horses when they moved across the Channel. There are, however, some difficulties with the argument that all of the 'native' breeds are descended from these imported animals – particularly with regard to the Exmoor pony. Speed wrote:

The Celts imported a small 10 hands high pony but it does not appear to have been pure-bred, because it had some of the characters of the eastern small pony and some characters of the southern horses. It is found buried in the graves of the

Celtic settlements and was a somatic horse, but it obviously did not succeed in establishing itself in a wild state here, and its bones show evidence of diseases.³²

Other Celtic period graves indicate that there were at least two types of horse living in Britain at this time. The graves from Blewburton included 'a slender stallion of about 11 hands while the other was identified by Speed as the original British pony type'.³³ It is not surprising that the Celts would have brought over their own native horse when they crossed the Channel. Why would they not? These were the animals they were familiar with that were tamed and trained in the style used by the Celts. It is also not unreasonable to assume that, upon settling into life on the British Isles, the Celts began to look at the native British Hill pony as a useful animal. Their imported horses were not well suited to the climate and fodder of the Isles, particularly in the moorland areas. The Continental horses would have lacked the physical adaptations of the British Hill pony. So the imported horses would have required more human assistance to survive. Their unsuitability for life in Britain does not mean the Celts would have abandoned breeding their imported horses. I think quite the opposite would have happened. The difficulty in keeping these animals would have made them all the more significant and valuable. The extra care required for their upkeep translated to a greater cost, thereby increasing the status associated with the owners of these horses.

What about the native ponies of the British Isles? The logical answer is that the Celts began to make use of the local equine populations. Given the value of the imported horses they would not have been used for regular, everyday work or as a food source. Instead the Celts could turn to the native British ponies: they would have been comparatively inexpensive to keep. Crosses – whether through intentional breeding practices or otherwise – between the native ponies and imported horses must have occurred creating yet another type, the optimal specimen of which would have carried the best qualities of both types. As Baker correctly states,

The Celts began the practice of importing animals to the British Isles and in the case of horses and ponies, it was to

continue throughout history. Man quickly found that the genetic flexibility which had served the horse family so well in its natural history provided a wonderful basis for animal husbandry.³⁴

What did the British Hill pony look like? The only surviving physical remains of the British Hill pony are bones.³⁵ But bones can still relate a great deal of information about a horse. Bone length (particularly the long bones in the legs) has been shown to give an accurate representation of total height. Bone comparisons of fossil horses from Alaska, Mendip and Brighton were all of identical size and indicate that these ancestral horses stood approximately 12.3 hh at the withers. The leg structure also suggests that this pony had short, stout legs that helped produce an even, short stride; ideal for movement on hilly terrain.³⁶ The measurements provided by the fossil horses fit with Ebhardt's argument that Equine Type 1 (or the Northern pony, of which the British Hill pony was a representative) stood 11.3–13.3 hh. Ebhardt also described the teeth and jaws of the British Hill pony and its relatives as being unique:

The premolars as well as the molars swing through to the front with their lower ends growing until all the molars are stretched forwards regularly. If one lengthens the high axis of all the molars upwards, they meet all in one place, in fact 16 to 18 cm above the chewing surface. All the molars are placed so regularly in a wheel radius form that it is immediately obvious in the x-ray photos. Harder food in the cold areas required a high chewing pressure which was and is passed on with the growth of the molars onto a much bigger bone length.³⁷

How does the Exmoor pony fit into the history of the British native breeds and does it resemble the physical model of the British Hill pony?

The Exmoor pony is categorized as a 'Mountain and Moorland' breed. Today there are obvious differences in appearance and size between the various Moorland and Mountain ponies, a result of crossbreeding with imported horses. Although the ancient

Mountain and Moorland ponies were scattered across the British Isles, the similarity in climate and topography suggests that they were fairly similar in appearance and body type. Sources from the late eighteenth century on suggest that this was true until quite recently. In 1796, William Marshall wrote of horses in West Devonshire:

The native breeds, which are still seen on the mountains that overlook this District, are very small: much resembling the Welsh and highland breeds.³⁸

In 1899, Lord Edward Cecil wrote:

Personally, I am of the opinion that the one great recommendation should be the power of the animal to live and thrive in winter without any adventitious sustenance, while there are many characteristics which all these possess in common, notably the clean-cut head, small ears, bright full eyes and well curved nostrils together with a strong predisposition to the brown color, with light tan or mealy points, which we see running through as a common attribute of them all.³⁹

Cecil moreover writes of the uniformity in appearance:

In 1890 I went to the New Forest and found that for many years few if any stallions of the old true breed had been kept. As far as I could ascertain, the old type when it appeared, was singularly like the Exmoor, in the wonderfully sharp outlook, clean head and bright eyes and also, singularly enough, the tanned muzzle and flanks. I tried the experiment of bringing a few Exmoors into the Forest, and everyone of all the old Commoners were unanimous (not knowing them to be Exmoors) in saying 'Ah that was the old kind of pony which lived in the Forest.'⁴⁰

Today, as hinted at by Cecil, many of these common features have disappeared from the Mountain and Moorland ponies. This is due to the practice of 'improving' the native ponies through

the introduction of non-native bloodlines. Speed and Speed wrote that:

Whole races of hill and moorland ponies have been disposed of in Britain by the simple process of turning Arab or Hackney horses into the herds to replace native stallions. The Monz, the Cushndal, the Tiree, the Long Mynd, the famous Galloways, the Goonhillys and many others have been exterminated by these means, because the offspring of such crossings were so valuable that they were quickly sold out but further crossings produced animals which were no longer able to fend for themselves as native Northern grazing horses.⁴¹

The Exmoor, however, seems to have largely avoided the practice of 'improvement' and indeed has, as we shall see, retained many of the primitive features that link it to the British Hill pony and the ancestral Northern pony. As Baker writes:

Whilst we have found traces of the British Hill Pony in other localities, on Exmoor alone we are faced even today with a population in which every individual fits our concept of the original wild type.⁴²

The leg formation, length and thus the height of the pony are very similar to the skeletal remains of the British Hill pony – strongly indicating that the Exmoor pony experienced little crossbreeding in its history. This means that its appearance and physical form are a response to its environment and not human intervention. This argument is further supported by the strikingly uniform appearance of the Exmoor in build and colour. The very primitive characteristics of its colouration are found in few other horses or ponies.⁴³ Further, the jaw structure of the Exmoor is very close to that of the British Hill pony:

The molar teeth are very large and well designed for their function. They are set into the jaw so that they meet at a single point, this design creates a strong chewing pressure which is required to deal with the tough moorland plants. Just as the leg bone structure matches that of the British Hill Pony and its

ancestors, this arrangement of the teeth seen in the Exmoor is the same as described for one of the four basic types of ancestral equid which Ebhardt identified in his studies.⁴⁴

The Exmoor pony has a distinctive and uniform appearance, displaying many 'primitive' features. Indeed,

Variation in color and markings, which are typical in breeds humans have created, is notably absent. This suggests that the Exmoor remains more a wild race than a selected breed. Characteristics of Exmoor ponies are all survival adaptations for avoiding predators as well as coping with hostile elements.⁴⁵

The coat of the Exmoor is invariably a shade of brown, from light brown to almost black. The legs are dark. The only markings are the mealy (oatmeal) muzzle and eye patches. The belly is sometimes a lighter colour than the rest of the coat. Typically the mane and tail are a darker shade than the coat. The coat of the Exmoor allows it not only to blend in well with the landscape it lives in, but also to comfortably withstand the harsh climate of the moors. During the wet, cold winter the Exmoor pony grows what is, in effect, a double coat. The first layer of hairs (those next to the body) act as insulation, a 'base layer' if you will. These soft hairs keep the pony warm. The outer coat acts as a waterproof 'Gore-Tex' layer. The coarse, greasy hairs cause water to bead up and roll off the pony preventing the soft insulating layer from becoming damp. This outer coat grows in whorls and vortices, which act as channels that force the water to run off the pony. Thus, even though an Exmoor standing in the pouring rain might look like a drowned rat, he is actually warm and dry. This layering system works equally well in the snow. Indeed, this snow thatching is so effective that 'in cold weather, snow does not melt on them. It collects on the ponies' backs as insufficient body heat escapes to melt it.'⁴⁶ When a significant amount of snow has accumulated, the pony simply shakes it off. Even the mane and tail of the Exmoor act as a form of climate control. The top of the tail is covered by hairs spread out in a fan shape to divert rain over the rump, preventing it from running under the tail. The thick mane

and forelock likewise act as insulation against the rain. The Exmoor has a hooded 'toad' eye. This is a fleshy rim above and below the eye that protects it from rainwater.⁴⁷ Speed reports how:

As an experiment we put four herds of animals of various ages out on some of the bleakest hills in this bleak winter of 1950–51, some of the mares suckling one foal and carrying another, and some foals weaned at five months, and we hardened our hearts and turned our backs and left them to prove that they knew something about the ecology of Britain. The shepherds were warned off feeding them, but we could not level out all the hillocks that would give them shelter. In the spring we returned to count our losses and were cheerfully greeted by the same totals we had so harshly turned out in the autumn, and they were bouncing and very much alive . . . One Exmoor pony with a touch of other blood was put out with the others as a matter of interest, and we found it the poorest in condition.⁴⁸

The Exmoor stands 11.1–13.1 hh. These ponies have a very high strength-to-size ratio with at least 6.5–7 inches of bone circumference below the knee. The clean, short legs of the Exmoor are well adapted for easy movement over uneven terrain.⁴⁹ These ponies have impressive stamina, can easily carry an adult man, work well in harness and are quite good jumpers, making them very versatile animals.⁵⁰

The Exmoor is today a very rare breed, but their purity and bloodlines are carefully protected and many ponies still run in wild herds on the moors. These ponies are rounded up each October for inspection and branding of the foals. Any colt that does not meet the breed standard is gelded. These ponies live with little or no human support; they are 'quite literally the "children of the moor". The food, climate and living conditions continue to produce the pony as it is today.'⁵¹ During the summer and autumn months food is plentiful and the ponies consume mainly grasses, while in the winter months grasses make up less than a quarter of their diet, and they subsist on heather and gorse.⁵² Disease is rarely found in the purebred pony populations on the Moors, but increases if crossbreeding is introduced.⁵³ Ponies bred in domestic

conditions begin to lose the 'type' so unique to the moorland Exmoor.⁵⁴

CASE STUDY TWO: THE PRZEWALSKI HORSE

The Przewalski horse is a truly unique specimen among equines.⁵⁵ It resembles no other living horse breed. The Przewalski horse was 'discovered' by the Russian explorer Colonel Nikolai Przewalski in 1876. While on his way back to Russia from Central Asia he was presented with the skull and hide of a wild horse, which he in turn gave to the Russian Academy of Science in St Petersburg. This specimen was examined by the zoologist Poliakoff, who declared this to be a new species of equid and duly named it *Equus przewalskii* in honour of its 'discoverer'. Poliakoff wrote of Przewalski's specimen that:

If our new species had more hair on the upper part of the tail, we would have a small dun domestic horse. Its relatively coarse head is not so different from ordinary horses. And if, under the influence of domestication, it were possible for a fuller tail and longer mane, then I am prepared to believe in fact, *Equus przewalskii* is the same animal whose ancestors were tamed by Stone Age people.⁵⁶

Unfortunately for Przewalski and Poliakoff, things were not so clear-cut. European zoologists believed that true wild horses were long extinct. Poliakoff's argument that this was not only a true wild horse but also a new species of equid was not well received and generally disbelieved. In 1891, Sir William Flower, Director of the British Museum wrote:

Much interest, not yet thoroughly satisfied, has been excited among zoologists by the announcement by M. Poliakoff of the discovery by the late distinguished Russian explorer, Prjevalsky, of a distinct species of wild horse. One specimen, unfortunately, only was obtained, while searching for wild camels in the sandy deserts of Central Asia near Zaisan. It is described as being intermediate in character between the equine and asinine groups of Equidae so that it completely

breaks down the genetic distinction which some zoologists thought fit to establish between them. It has callosities on all four limbs, as in the horse, but only the lower half of the tail is covered with long hairs, as in the ass. The general colour is dun, with a yellowish tinge on the back, becoming lighter towards the flanks and almost white under the belly, and there is no dorsal stripe. The mane is dark brown, short and erect, and there is no forelock. The hair is long and wavy on the head, cheek and jaws. The skull and hoofs are described as being more like those of the horse than the ass.

Until more specimens are obtained it is difficult to form a definite opinion as to the validity of the species, or to resist the suspicion that it may not be an accidental hybrid between the Kiang and the horse.⁵⁷

The specimen Poliakoff examined was in his winter coat. This accounts for the absence of a dorsal stripe and other 'primitive' markings commonly found when the Przewalski horse is in his summer coat. This also explains the lighter coat and the long, wavy hairs on the head. In some regards the basic colouration of the Przewalski horse does resemble the kiang. Moreover, both the Przewalski horse and the kiang inhabited the same regions of the Gobi. Hence it is not surprising that European zoologists were suspicious of Poliakoff's specimen and considered it to be a hybrid between a domestic or feral Mongolia horse and a kiang.

In 1904, Ewart stated:

As far as I can gather, it is generally believed in England that Prjevalsky's Horse is a hybrid – a cross between a pony and a Kiang. Beddard, however, admits it may be a distinct type. He says, 'this animal has been believed to be a mule between the wild ass and a feral horse, but if a distinct form – and probability seems to urge that view – it is interesting as breaking down the distinctions between horses and asses.' It must be admitted that in its mane and tail Prjevalsky's Horse is strongly suggestive of a hybrid, but in the short mane and mule-like tail we may very well have persistence of ancestral characteristics.⁵⁸

Zalensky likewise commented in 1902:

The mane reminds one, because of its thickness, of that of the onagers. As Poliakoff has stated, it is not very high, begins between the ears and comes down to the middle of the withers. At the top and bottom the mane is shorter and in the middle it is about 16–20 cm ... the forelock is just slightly developed in Przewalski Horses as it is in the Kulan and Kiang.⁵⁹

The first obstacle the Przewalski horse and his supporters had to overcome was to establish 'purity' – that he was a true horse and not a horse–kiang hybrid. Ewart successfully silenced the hybrid argument through some experimental breeding. Ewart who, as Clutton-Brick puts it, 'late in his career was responsible for some hare-brained ideas about the origins of the domestic horse'⁶⁰ nonetheless set out to discover the truth of the matter regarding the Przewalski horse in a rather sensible and logical manner. For 'failing to understand why so many zoologists persisted in considering the horse of the Great Gobi Desert to be a mule I decided to breed a number of Kiang–horse hybrids'.⁶¹ None of the offspring produced from Ewart's many crosses even slightly resembled the Przewalski horse. Thus, he seemed to successfully refute the hybrid argument. But there was still a group that denied the notion that the Przewalski horse could be a new species and a true wild horse.

The problem was all in the name. Poliakoff had chosen to name this equid *Equus przewalskii*. Ewart had shown through his breeding experiments that *Equus przewalskii* was indeed a true horse and not a hybrid, but it remained to be established whether the Przewalski horse was really something new or not. The notion of a wild horse was not foreign to Russian or European zoologists who had long known of one – the tarpan. So the next question to be answered (and it was an important one) was whether or not the Przewalski horse was actually a tarpan. Mohr summarizes this complicated issue when she describes the many names assigned to the Przewalski horse:

If we are not using the technical name *Equus przewalskii poliakoff*, we generally refer to the Przewalski horse, the wild

horse, or the primitive wild horse (Urwildpferd). In its native country a number of other names are used in which the same elements appear. Behm (1876) refers to the Kirgiz name 'Surtake,' Poliakoff (1881) to 'Surtaken.' According to Kangkarel (1896) the animal is called by the Kirgiz and tartars 'Kertag,' whilst the Mongolians call it 'Take' and 'Statur.' Greve (1901) says that in the Turfan region the names 'Jauwat' or 'Takkay,' and in Mongolian 'Statur' or 'Dzurlikadu.' He further adds: 'Przewalski called the animal "Kartag," the Kulan "Surtag"; but the former means only "bay" and the latter "dun". The Chinese call all wild Equidae "je-ma".'

The most difficult thing with these names is the difference in the same forms used in the east and west for common names, which adds to the complications. The Russians themselves call *Equus przewalskii* 'Tarpan' and even Przewalski himself recorded one of the skins he brought back as a new variety of the 'Tarpan'. Poliakoff, quite rightly contradicted him and said 'but it is entirely different from the Tarpan or wild horses of travelers and scientists of the last century. In any case what I called *Equus przewalskii* cannot be the Tarpan as described by Rytchhoff, Gmelin, Pallas and others ...' When Matschie and Falz-Fein spoke of the 'Tarpan' they knew quite well that they meant *Equus przewalskii* although other people reading their articles in the popular press did not understand this, not even with the addition of geographical descriptions as 'South Russia' or 'Mongolian Tarpan.'

Heptner (1966) describes *Equus przewalskii* as 'Tarpan' and adds the footnote 'This description is usually given to the wild horse of our European Steppes; i.e. the True Tarpan (gmelini), but there appears to be good reason to use it for the whole species.'⁶²

Further complications arose with the scientific taxonomy:

As we know Poliakoff entered the Mongolian Wild Horse into the literature of zoology under the name of *Equus przewalskii*, in 1881. Later Noack wanted to separate a branch of Przewalski Horses by the name *Equus hagenbecki*, as an independent species; whereas Hilzheimer on the other hand

tried to identify the wild horses Pallas had described under the name of *Equus equiferus* with the Przewalski Horse. Heptner considered them as a species identical with the Tarpan and denominated them as a subspecies, *Equus przewalskii przewalskii*. In Nobis' opinion too, the Mongolian Wild horse is a subspecies of the Late Pleistocene – Early Holocene Eurasian Wild Horse, and since the latter's oldest name is *Equus ferus*, he called the Przewalski Horse *Equus ferus przewalskii*.⁶³

The tarpan (*Equus ferus gmelini*) is also known as the European or Ukrainian Wild Horse. The name 'tarpan' or 'turpan' is Turkmenian. Similar names exist in Tartar and Bashkirian.⁶⁴ It is thought that the 'wild white horses' which Herodotus claimed graze at the headwaters of the Hypanis River (the modern Bug River) were tarpans.⁶⁵ Gmelin first described the tarpan in 1769. He took part in a tarpan hunt on which he killed two mares and a stallion. According to his description,

The Tarpan is of the same size as the smallest Russian domestic horse. Its head is massive, the ears being pointed and sometimes rather long. The eyes are fiery, the mane short and erect. Its tail is more or less covered with hair and shorter than that of domestic horses. The Tarpan's colour is mouse-grey (though mention is made of white and ash-grey individuals elsewhere), its belly is ash-grey and thick, so much so that one would rather think of a fur than of a horse's fell.⁶⁶

Over a century later a similar description was produced by Smith:

Tarpans are not larger than ordinary mules, their colour invariably tan, Isabella, or mouse, being all shades of the same livery and only varying in depth by the growth or decrease of a whitish surcoat longer than the hair, increasing from midsummer and shedding in May; during the cold season it is long, heavy and soft, lying so close as to feel like a bear's fur, and then it is entirely grizzled; in summer much falls away, leaving only a certain quantity on the back and

loins. The head is small, the forehead greatly arched, the ears far back, either long or short, the eyes small and malignant, the chin and muzzle beset with bristles, the neck rather thin, crested with a thick rugged mane, which like the tail is black, as also the pasterns which are long; the hoofs are narrow, high and rather pointed; the tail, descending only to the hocks, is furnished with coarse and rather curly or wavy hairs close up to the crupper; the croup is as high as the withers; the voice of the Tarpan is loud and shriller than that of domestic horses; and their action, standing and general appearance resemble somewhat that of vicious mules.⁶⁷

An engraving of a tarpan appeared in Gmelin's book on his explorations of Russia, published in 1770. The subject of the engraving is a yearling filly and 'shows only one distinctive feature, the short upstanding mane which is a characteristic of all wild equids'.⁶⁸ Over a century later, another engraving was produced to accompany Hamilton Smith's description of the tarpan. This image 'shows a slender-legged animal, very much more refined in the head than the Asian Wild Horse, but with a pronounced convex profile. The overall impression is of a horse that evolved in dry, steppe-like conditions.'⁶⁹ The zoologist Heptner provided an account of the last living tarpan, a captive animal that died in 1918–19:

It was a stallion of 140–145 cm (13–13.1hh), with a big head, a broad forehead and a straight profile. Its ears were small and pointed, his neck was short and so was the straight back, while the rump was sway-backed. He was mouse-grey with a dorsal stripe about 2 cm wide running along the middle of the back and with a blurred stripe across the shoulders. His mane was very short, strikingly thick and erect.⁷⁰

The tarpan is believed to have been the last surviving wild horse in Europe. He inhabited the region of what is now the Ukraine and Poland.

Environmental factors make it unlikely that the tarpan and Przewalski horse could be the same animal. The habitat of the

tarpan was the forests of Eastern Europe. If the tarpan was a true wild horse his conformation and overall appearance would be that of a forest horse: an animal evolved to live on woodland/meadows borders. The climate in these regions is a Continental one, with warm, humid summers and cold, wet winters. The Przewalski horse, on the other hand, lived on the open expanse of the Eurasian Steppe and the Gobi Desert. The climate in these regions is dry and extreme. Unlike the tarpan, the Przewalski horse could not shelter from storms in the trees, but was exposed to the weather. The Przewalski horse had to withstand shortages of food and water that would not be present in the habitat of a forest horse. Thus, based on environmental factors alone, a forest tarpan and steppe Przewalski horse were conformationally different from each other.

There are some distinct differences between the Przewalski horse and descriptions of the tarpan. The tarpan is smaller and slighter than the Przewalski horse; his head is shorter and the forehead wider. There is also the obvious difference in colour. It is interesting that horses of grey and dun colours appear in the cave paintings of south-western Europe. The types of equines portrayed in these images resemble both the Przewalski horse and the tarpan. I think it is not unrealistic to view the Przewalski horse and the tarpan as variations of the same type. The tarpan became a smaller forest-type horse while the Przewalski adapted to survive the conditions of the Eurasian Steppe. Nor should we be surprised to learn that the tarpan was hunted to extinction before the Przewalski horse; the tarpan inhabited a much more densely populated region. This explains two things:

1. Why there are more descriptions of tarpan-type horses in the literary record, possibly as early as Herodotus.
2. Why there is the appearance of what seem to be tarpan-domestic crosses intermixed with pure tarpans. The habitat of the tarpan lay in an agriculture-based economy and horses would have played a significant role in daily work. The Przewalski horse, on the other hand, is native to the mostly uninhabited steppe regions of Central Asia. The population in these regions was (and still is) primarily nomadic or semi-nomadic. There would have been some competition between domestic and wild animals for

grazing, but not nearly so much as in the more crowded regions of Central and Northern Europe.

If the Przewalski horse and tarpan are descendants of the same wild type, they serve as excellent examples to indicate how the physical characteristics of a horse type can change to adapt to a particular environment.

The Przewalski horse displays many physical features commonly termed 'primitive'. As with the Exmoor pony, the Przewalski horse is uniform in colour. Lack of variation in colour patterns is an indication of little outside influence in breeding. White markings do not appear in any form. As with colour consistency, this is often used to indicate 'purity'. The Przewalski horse is always a shade of yellow-dun with black points (legs and muzzle). The muzzle is black with a mealy-coloured ring surrounding it. The underbelly is cream in colour. These horses commonly have a black dorsal/eel stripe along their spine and back and zebra markings on their legs.⁷¹ Hendricks describes the Przewalski horse thus:

The Przewalski horse has a large, heavy head with a straight profile. The forehead is broad, the ears are large and heavy, the eyes are small. The jaw is heavy and the teeth are large. The neck is broad and short with a short, upright mane. The withers are flat, the back is straight and quite long, the croup is sloped and short. The tail is set low. The chest is deep, the shoulder is straight and short, the legs are stocky and sturdy with short pasterns. The hoof is narrow and elongated in shape. The tail has a distinct tuft at the end, especially noticeable during the winter months. The colour is yellowish-dun with a mealy muzzle and dark mane and tail. There is a dorsal stripe and zebra markings on the lower legs. White markings are absent.⁷²

Groves gave the following description of one of the captive Prague stallions:

The stallion has a height of 138–146 cm and the usual weight is 250–300 kg. The build is low and robust with a very strong,

relatively short and slender neck. The head is conical, the forehead only slightly vaulted, and the upper and lower profile lines are straight, with an angle between them of only 16–20 degrees (in domestic horses, the two profile lines converge more strongly, the head being less oblong and more triangular, and the angle between the profile lines in 25–32 degrees). The snout region is thus much thicker than a domestic horse, the lower jaw is not concave, and the head is relatively large.⁷³

Aside from its uniform colouration, the most distinctive feature of the Przewalski horse is his mane, which is invariably black, coarse and upright with no forelock. The only instances of a Przewalski horse exhibiting a long, drooping mane occur in captivity. The conclusion was made that the mane grew thus from neglect. In the wild the Przewalski horse sheds his mane every year. The tail also differs from that of other horses. Like the Exmoor, The Przewalski has short hairs resembling a 'snowchute' at the top of his tail; longer hairs grow towards the bottom of the tail. The peculiar upright mane of the Przewalski horse is a hallmark of wild equids:⁷⁴

Normally all wild equids have an upright mane which is rather darker than the rest of the coat but at certain times of the year will take on a lighter tone. All wild equids have a periodic, normally annual, change of hair (mane and tail) – unlike domestic horses in which both the mane and tail grow longer and longer ... The change of mane hair begins when the outer hairs fall out 20–25 days after the beginning of the molt, whereas the actual mane itself begins to fall out a bit later. After 30–50 days the change ceases.⁷⁵

The head of the Przewalski horse is heavy and coarse in shape. It appears too large in proportion to the neck. This type of head shape is considered to be a very primitive feature. His large skull houses substantial jaws and large teeth. These are both adaptations required to consume the tough vegetation of the Eurasian Steppe. Mohr wryly states that: 'Even a beautiful head of a wild horse is not particularly well shaped and appears to be somewhat muscular.'⁷⁶

Bökönyi points out that the jaw muscles of Przewalski stallions are particularly pronounced. He suggests that this is to enable more savage biting of opponents.⁷⁷

Like the Exmoor, the coat of the Przewalski horse varies considerably between summer and winter. The summer coat is short and sleek with a richer colour. In winter the coat becomes long and coarse with a woolly under-layer. The shade of the winter coat lightens in comparison with the summer version.⁷⁸ Both the summer and winter colours can be seen as an adaptation to allow a Przewalski horse to blend in with his environment.

CASE STUDY THREE: THE AKHAL TEKE

The Akhal Teke is considered to be the purest descendent of the ancient Turanian and Turkoman horses of the Near East and Central Asia.⁷⁹ The excellence of the Turkoman horse is noted by Marco Polo, who wrote:

They [the Turkomans] roam over the mountains and plains, wherever they know that there is good pasturage, because they live off their flocks. They have clothing made of skins, and dwellings of felt or of skins. The country breeds good Turcoman horses and good mules of excellent quality.⁸⁰

The Akhal Teke is an unorthodox and striking animal. His conformation does not fit with any Western image of the ideal horse.⁸¹ To look at an Akhal Teke is to see a collection of sharp angles. This horse has no excess fleshiness or bulging muscles, he is all lean muscles and long, slender lines. He epitomizes the meaning of a 'dry' appearance. At first glance an Akhal Teke goes against all conformational rules. His neck is narrow and very upright with a naturally high head carriage. These horses are not built for deep flexion at the poll to 'come onto the bit' in the manner of European and North American horses. The back is long. This typically denotes a weak back because of the amount of strain put on the tendons and ligaments and makes the animal prone to becoming sway-backed. A long back also indicates difficulty in attaining proper collection as the horse finds it much more difficult to bring his hindquarters well underneath him.

The hindquarters are angular and look weak. The legs are long and slender with unusually long, sloping pasterns on the hind legs. Traditionally these are all considered to be fairly severe physical faults, but this is not the case with the Akhal Teke. As we shall see below, the husbandry practices used by the Turkoman nomads quickly removed any weak genetics from the bloodlines. So why does the Akhal Teke have such an unusual appearance and why has it been propagated for so long? The answer is found in the very environment in which he lives.

The Akhal Teke was historically bred by the Teke tribes of what is now Turkmenistan. These tribes inhabit the territory between Ashkhabad and Merv, a region now crisscrossed by irrigation ditches, but traditionally was dry, open steppe. In his native Turkmenistan the Akhal Teke is raised in the long-established manner of Central Asian horse husbandry. The name itself references the degree of dedication the Teke nomads give to the breeding of these horses; the word 'Akhal' translates as pure, and the bloodlines and records of these horses are an important part of the historic Teke oral tradition.⁸² These horses are bred, born and raised on the open steppe. The riding horses, usually stallions, remained tethered outside of the family tent whenever he was not being exercised and family members usually fed him by hand, thus encouraging the animal to develop a close bond with his owner(s). One Turkoman saying states: 'In the morning see your father, then your horse.'⁸³ It is claimed that the family riding horse(s) was introduced to any prospective suitors seeking to marry a daughter; the reaction of the horse(s) played a part in the final decision.⁸⁴ The horse holds an important place in Turkoman folklore and history. He takes a central role in the national epic of the Turkoman people, the *Gorogli Saga*. The protagonist, Gorogli, is described by one scholar as 'a musically-inclined Robin Hood with a horse'.⁸⁵ In most versions of the saga, Gorogli is said to be a Turkoman of the Teke tribe and thus we should expect him to be mounted on a Teke horse.⁸⁶ The importance of the horse to the Turkic peoples, especially the Turkoman tribes, was evident to the European travellers exploring the region. During his travels through Central Asia, Vambéry observed the following with regards to the Turkomans and their horses:

The main instrument, the one to which the Turkoman gives the preference over all others in his forays, is, beyond all question, his horse, which is really a wonderful creature, prized by the son of the desert more than his wife, more than his children, more than his own life. It is interesting to mark with what carefulness he brings him up, how he clothes him to resist cold and heat, what magnificence he displays in the accoutrements of his saddle, in which he, perhaps in a wretched dress of rags, makes a strong contrast with the carefully decorated steed. These fine creatures are well worth all the praise bestowed upon them, and the stories recounted of their speed and powers of endurance are far from being exaggerated.⁸⁷

Traditional breeding practices have made the Teke self-sufficient and hardy. Any horse born with a deformity or other genetic weakness does not survive. Thus only the best characteristics are passed on in the bloodlines. Colts are caught at six months of age at which point they are weaned from their dams and brought into the nomad camps to be trained. While still less than one year of age, a child is put on their back for the first time and led behind an adult mounted on a trained horse. They are fed a high-protein diet that includes eggs and even meat as well as raisins, dates and whatever forage might be available such as barley and straw.⁸⁸ The horses are regularly covered with thick felt blankets to sweat off any excess fat, keeping a long, lean appearance. The thin coat and lack of fat allows the horse to cool down more efficiently in the desert heat. This is an old custom. The Pazyryk horses from Scythian kurgans in the Altai Mountains were covered with felts, presumably for the same purpose of 'sweating out', although, these felt blankets also offered additional warmth in the winter. The felt-cloaked horses of Pazyryk were likely not a native type, but one imported from farther south that thus required certain concessions to survive in the harsh northern environment.⁸⁹

For exercise the horses are traditionally galloped in the morning and evening over long distances.⁹⁰ There are, in fact, a number of similarities between the traditional training regime of the Teke nomads and that laid out in the Hittite *Kikkuli Text*, particularly with regards to the conditioning of horses for consistent work over

long distances.⁹¹ The extreme hardiness of an Akhal Teke raised in this manner is made apparent by the fact that few of these horses suffer any sort of physical break down. Those who do are never used for breeding. Hendricks describes the precise training and conditioning regime as follows:

The Turkomans traditionally use proven methods to condition their horses – only animals that have shown their ability for traveling great distances are used for racing. Conditioning begins slowly. The first day only the saddle is placed on the horse's back. The second day the horse is ridden to water and for one week thereafter walked slowly each day for increasing periods. After one week the horse is put to the trot and will not canter for another two weeks. Galloping is done only at night and sweating beneath the blankets is the usual fare for the day. Only small boys are used for jockeys, while all sizes and ages are used for the slow conditioning. While being conditioned for racing and during the racing season, the horses are fed barley up to seven times a day. They are fed chopped straw and alfalfa five times a day.⁹²

The Akhal Teke is superbly adapted to desert survival. There is no excess flesh on his body and his coat is sleek and short. He has slender, but dense bone in his legs and his peculiar sloping rear pasterns are an adaptation for movement over soft, sandy ground. The overall shape of a Teke should give the impression of length: he should be longer than he is tall, giving a rectangular profile. The movement of a Teke is, like many other aspects of this horse, unique. He has peculiar floating gaits, a result of his unusual conformation, that give a sense of fluidity and softness without wasting energy on flashiness or high knee action. This type of gait is another adaptation for efficient covering of distance over long periods. The low movement has the added benefit of being smooth and comfortable for the rider, an advantage for long-distance riding.⁹³ The Akhal Teke is not a tall horse by modern standards as he rarely exceeds 16hh. By far the most striking and unusual feature of the Akhal Teke is his colouration. These horses are most famous for a metallic yellow-dun coloured coat. This metallic colouration is only found in horses descended from the

Turkoman/Turanian type and for this reason, quite likely existed in antiquity.⁹⁴

Today the Akhal Teke is found primarily on the racetracks of Turkmenistan where he competes in races that are several miles long.⁹⁵ Their athleticism, however, extends far beyond simple horse racing. Given their historical role as the mounts of Central Asian nomads and cavalry, one should not be surprised to discover the Teke is an extraordinary endurance animal as well as an agile, versatile athlete. In fact the Akhal Teke 'is renowned for its endurance over long distances in severe climatic conditions, even more than for its racing ability'.⁹⁶ During the regular veterinary checks in the sport of modern endurance racing, Akhal Tekes have regularly shown themselves to produce some of the quickest cardiac recovery scores.⁹⁷ In 1935 the endurance capabilities of the purebred Akhal Tekes were put to the test when a group of Teke tribesman rode their stallions from Ashkhabad to Moscow. The purpose of this epic trek was to prove the importance of preserving pure Akhal Teke bloodlines, as crosses with Thoroughbreds were becoming more frequent thus diluting the traditional desert adaptations of this type. The feat was repeated in 1988 when 29 Turkoman stallions – 27 Akhal Tekes and 2 Iomuds – were ridden from Ashkhabad to Moscow across Turkmenistan, Uzbekistan, Kazakhstan and Russia. The horses were faced with extreme weather conditions and varying terrain as well as frequent shortages of food and water. The ride was completed in 60 days and only one of the 29 horses did not finish.⁹⁸ The successful completion of both treks served to prove that despite his all-around athleticism, the Akhal Teke is descended from horses who played an essential role in the daily survival of the Turkoman nomads; peoples who depended on the endurance and workman-like attitude of this horse to move them across the desert between water holes and oases, distances on average 80 miles apart.⁹⁹

CASE STUDY FOUR: THE IBERIAN HORSES – ASTURIAN AND SORRAIA

The Iberian peninsula lies at the western end of the Mediterranean Basin, at the intersection of the Atlantic Ocean and the Mediterranean Sea. On account of its location, two climatic

systems are found in the peninsula: an Atlantic zone that receives an average of 1,200 mm of rain per year and the Mediterranean zone which receives c.600 mm of rain per year. The most arid part of the peninsula is the Mediterranean–Atlantic coast between the Segura and Cadiz. The Meseta lands of the Iberian plateau are a mix of the climatic types: dry in the summer and cold in the winter with snow falling as far south as the Sierra Nevada range. The peninsula is, like many other Mediterranean regions, rocky and mountainous. Historically the northern parts of the region in the Atlantic climatic zone were thickly forested with oak trees. Both the climatic zones and the dominance of mountainous landscapes had an important influence on the development of the two historical Iberian hoses discussed here.¹⁰⁰

Although the earliest ancestors of the horse – *Hyracotherium* and his descendents – were forest dwellers, *Equus* preferred open spaces and a grassy diet. Iberia was not always rocky and rugged. During the Holocene period only two ‘hotspots’ of equine genetic diversity existed: in the Caspian region of Western Asia and in the Iberian peninsula. The peninsula was the only region in Central and Western Europe with sizable expanses of open landscape during the mid to late Holocene and thus became a refuge for wild horses. These horses continued to live in the peninsula during the Neolithic and Copper Ages. Horse remains have been found at sites from these periods in the peninsula. Wild horses seem to have flourished in Iberia during antiquity. According to Varro, wild horses could be found in Iberia in his own time, he writes: ‘There are even now many quite wild cattle in Dardania, Maedica, and Thrace; wild asses in Phrygia and Lycaonia, and wild horses at several points in Hither Spain.’¹⁰¹ Likewise, Strabo tells us that ‘Iberia produces many deer and wild horses.’¹⁰² Recent genetic studies show that several pre-domestic maternal lineages survive in modern horses of Iberian descent, indicating the genetic contribution of Iberian wild equines to local domestic horses.¹⁰³

As the climate and topography of the peninsula changed, so to did its equine inhabitants. The horses depicted in the Côa Valley and Altamira caves are a very ‘primitive’ type. They look nothing like modern Iberian horses, but closely resemble the Przewalski horse of Central Asia. As we have already seen, the Przewalski

horse is well suited to steppe survival. The presence of Przewalski-type equines in Iberia suggests that at the time these images were made the Iberian peninsula was considerably less forested than in the later historical period. As the climate and topography changed, a horse better suited to a rocky, mountainous home began to develop in northern Iberia. This animal was lighter in build thanks to a sparser diet. He became 'base narrow' to navigate narrow mountain tracks and, most interestingly, he, like many other mountain equids, became gaited. Indeed, a narrow but clear trail of ambling/gaited horses can be found in Iberia, Greece, Turkey, China, Mongolia and Siberia. Pliny the Elder writes that

in Spain the Gallic and Asturian tribes breed those of the horse kind that we call 'theldones,' though when more of a pony type they are designated 'cobs', which have not the usual paces in running but a smooth trot, straightening the near and off-side legs alternately, from which the horses are taught by training to adopt an ambling pace.¹⁰⁴

Martial describes 'This little Asturian horse that picks up its fleet hooves in rhythm.'¹⁰⁵ Strabo informs us the Iberian horses are 'smoother runners than the other horses'.¹⁰⁶

The descendant of the Asturian (or Asturcon) horse mentioned in our classical texts still survives today, though he is very rare. The Asturcon is a small, hardy horse standing 11.2–12.2 hh. He lives as a feral horse in northern Spain, in the regions of Asturias and Galicia high up in the Asturian mountains. These horses were highly prized from classical times through the Middle Ages for their comfortable gait and were frequently used as palfreys and ladies' mounts. Despite his popularity in Western Europe during antiquity and the Middle Ages, we actually know very little about the history of this diminutive equine.¹⁰⁷ He is a sturdy, well-built animal with a long, slender neck, sloping shoulders, a straight and strong back, a sloping croup, straight legs with good bone and well-shaped, tough feet. Interestingly, the head can be heavy and primitive in appearance. This is possibly a throwback to the 'primitive' prehistoric ancestors found in Iberian cave art.¹⁰⁸

The Asturian ambled his way through the mountainous tracks of northern Iberia, but the environment of central and southern Iberia was much more arid and open. This necessitated the development of a different type of horse. This animal had a finer, 'drier' appearance, giving the impression of a lean-muscled, slender animal resembling those found in Italy, Greece and Western Asia Minor during antiquity. These horses were well adapted to an arid environment. Their long, open strides allowed them to easily cross the grasslands of southern Iberia while their compact bodies enabled them to work in the rocky terrain so frequently found across the Mediterranean Basin. These were versatile equines, suitable for travel, war and the hippodrome. A living representative of this type can be found in the Sorraia.

The Sorraia originated in the western reaches of the Iberian peninsula, particularly the area to the north of Lisbon. The name Sorraia is taken from the rivers Sor and Raia that irrigate the plains where these horses have roamed for millennia. This breed is very hardy and noted for his ability to thrive on very little food of the lowest quality in what can be a very harsh environment, all the while maintaining his robust health. The Sorraia rarely exceeds 13.2 hh, but because of his tough, wiry build he was for centuries the chosen mount of the Iberian cowboy. There were likely many Sorraia horses on the ships of the conquistadors. Their stamp can certainly be seen in the Mustangs of the United States and the Criollo horses of Argentina. The Sorraia has a calm, workmanlike attitude. He is intelligent and responsive. His colour is invariably dun or grullo with a black dorsal stripe, black-tipped ears, heavy black mane and tail, black zebra stripes on the legs and across the shoulders. There are never any white markings on the Sorraia. The head is large and convex, once again recalling the prehistoric cave images. The neck is long and slender, set on a straight to slightly sloping shoulder. He has a narrow chest, but a deep girth. His back is short and straight, making him very close-coupled. The croup is sloping. The legs are long, solid and clean, the hooves hard and dark. Most hippologists today strongly believe that the Sorraia heavily influenced the development of the modern Iberian horse.¹⁰⁹

CASE STUDY FIVE: THE CASPIAN HORSE

One final case study remains to be discussed. While he does not fall directly into any of the four ancestral types – Northern European, Northern Steppe, Southern Steppe and Iberian/Mediterranean – the Caspian horse is nonetheless a unique animal with an important link to the equines of antiquity. The Caspian horse, much like the other three native types discussed in this section, is today a very rare animal. Moreover, as with the Przewalski horse and the Akhal Teke, the Caspian has only come to the attention of horse breeders outside his native Iran fairly recently.¹¹⁰

The Caspian is a truly diminutive equine, rarely exceeding 12 hh. He is not, however, a pony. Like the Mediterranean, Near Eastern and Central Asian horses of antiquity, the Caspian is a miniature horse. Indeed, the appearance and proportions of the Caspian closely resemble the Fourth Ancestral Horse proposed by Ebhardt and accepted by many others.¹¹¹ The Caspian is native to the mountainous regions of northern Iran. This environment has made these little horses tough and athletic, displaying nimbleness over rocky terrain, while being able to survive the arid, cold of winter.¹¹² The Caspian is lean and dry in appearance, much like the Akhal Teke. His head is small and elegant in shape, with a unique, pronounced forehead. His neck is long and slender, arching through the crest and running into pronounced withers at its base. The back is short and level, with powerful, well-shaped hindquarters. This horse has long, slender legs with dense bone and no excess hair or fleshiness. When viewed as a whole, the Caspian should look like a well-proportioned small horse, not a pony.¹¹³

Miniature horses resembling the Caspian in appearance do appear in ancient Near Eastern art. The gold *quadriga* found in the Oxus Treasure is pulled by four slender-bodied, small (in comparison with the chariot and human occupants) equines. This is certainly interesting as the royal chariot is – at least in the Classical sources – said to have been drawn by Nesaean horses, but the horses yoked to the Oxus chariot resemble the Nesaean only in the shape of their heads.¹¹⁴ Small horses are also yoked to a chariot on the frieze of the Apadana staircase at Persepolis.¹¹⁵ A cylindrical seal of Darius I, the so-called ‘Darius Seal’, depicts the

king lion hunting from a chariot pulled by a rather diminutive horse.¹¹⁶ Small horses can also be found in the reliefs of Sargon II's palace at Khorsabad. An Assyrian groom leads four caparisoned horses in façade L, Court I and two richly decorated diminutive equines are found in the procession of foreigners in façade N, Court VII. These small equines can also be found in the south-west palace at Nineveh, in a series of reliefs depicting the battle of Til Tuba between the Assyrians and the Elamites.¹¹⁷

Of course, we cannot state that the Caspian horse is an entirely pure descendent of the horses of antiquity, no more so than with any other native type. Nevertheless, he represents one of the oldest existing equine types and without a doubt has been influential in the establishment of many modern light-horse types. Iran and its environs were the crossroads of a huge number of cultures, including the Greeks, Romans, Persians, Parthians, Sasanians and Arabs. A good many of the cultures that swept through or established themselves in this area were horse cultures and the ancient Caspian type horse must have influenced horse breeding. Certainly the similarities in appearance between the Caspian and Arabian horse are apparent, with the Caspian displaying the more unique, primitive characteristics, thus suggesting he pre-dated the Arabian.

CHAPTER 4

THE ANCIENT HORSE TYPES

THE CENTRAL ASIAN HORSE

The horsemen of the Eurasian Steppe are perhaps some of the most elusive and enigmatic warriors from the ancient world. Steppe cultures and tribes from across the centuries blend together into a single iconic image of the ruthless barbarian horde. The authors of antiquity either had trouble or lacked the desire to distinguish between the various steppe groups. The term ‘Scythian’ was frequently used to denote the generic horse archer. Priscus called the Huns Scythians in the fifth century CE and Anna Comnena uses the term throughout her *Alexiad*.¹ The literary sources make it clear that the nomadic inhabitants of the steppe produced a universal sense of unease amongst the residents of the urbanized West; for them ‘the bow-wielding Scythian and Sarmatian horsemen summon up the worst type of nomadic marauder’.² This was due in part to the fact that everything about the traditional steppe lifestyle was contrary to urban thought. These invaders represented the ‘Other’ in every possible sense of the word.

Environment

Central Asia lies at the heartland of Eurasia. It is a vast region, although the enormity of its size is frequently lost when viewed in tandem with the entirety of Europe and Asia. This region is one of extremes, making it a place where survival and lifestyle are dictated by nature, not humans. Until the 1900s there was very

little attempt made at mastering or subduing the Central Asian environment and bending it to human agricultural and urban will. Geographers traditionally divide Central Asia into two parts: western and eastern Turkestan. The western portion encompasses 'the Turin plains east of the Caspian Sea and the Kazakh upland north of it, stretching eastward to the foot of the T'ien Shan and Pamir-Alay mountains and southward to the Kopet Dag mountains'. The eastern part includes 'the high plateaus of the Tarim Basin and the Junghar Basin (separated from one another by the T'ien Shan mountains, while the Tarim Basin is separated from the even higher Tibetan Plateau by the Kunlun range)'.³

Climatic conditions in Central Asia have changed frequently, even in the past three or so million years. The region went through a period of glaciation that witnessed the growth and retreat of large glaciers several times. Whenever these glaciers retreated, highland savannah and temperate woodlands appeared in their place. The bones of Przewalski-type horses have been found in the mountains of northern Afghanistan in caves used by Stone Age humans. The presence of the bones suggests the existence of temperate, humid grasslands during these interglacial periods. Steppe and semi-arid desert began to appear as early as the Tertiary period. These deserts, however, were far from barren. The deserts of the Xinjiang region were home to a plethora of wildlife that included crocodiles, ostriches, bison, antelope and rhinoceroses. Animal assemblages serve as an excellent indicator of climate: whenever a dramatic climate change occurred, animal migrations happened. Records of animal assemblages from Kazakhstan provide an excellent example of this pattern. As the climate changed, the assemblages changed from woolly mammoths, woolly rhinoceroses, bison and cave bears to animals better suited to an arid habitat such as the kulan, antelope and gazelle.⁴ Since the end of the last Ice Age Central Asia has been, for the most part, a very arid region. It experiences an extreme Continental climate. The winters are short but bitterly cold due to the predominance of the Asiatic High, a high-pressure system originating in Siberia with frigid north-eastern winds. The summers are hot and dry with little precipitation.⁵

The topography of Central Asia falls into three categories: desert, steppe and mountains. Although we typically associate

Central Asia with the open spaces of the steppe, large parts of it are mountainous.⁶ These mountains control climate and agriculture as well as the movement of people and animals. As Grousset states:

In their physical manifestation, the high plateaus of Asia bear witness to the most tremendous geological drama in the history of the planet. The upheaval and isolation of this huge continental mass were due to the converging assaults of two great chains of folded mountains formed in two different periods: the Himalayan folds of the T'ien Shan and Altai and the Himalayan Alpine folds. The arc of the T'ien Shan and Altai to the northwest and the opposing curve of the Himalayas, together encircle and isolate Turkestan and Mongolia.⁷

These mountains are still growing through a process called 'uplifting'. This is due to the almost constant collision of the Indian subcontinent against Asia, making Central Asia one of the most seismically active areas in the world. The T'ien Shan mountains stretch approximately 2,450 km east–west with some peaks reaching over 7,000 m in height. The range is organized into densely clustered groups of mountains, between which lie flat steppe and desert. The Pamir–Altay mountains extend from the southern edge of the Fergana Basin to the point where China and Afghanistan meet. The Pamir range can be divided into east and west: the western part of the range is high and snowy, while the eastern Pamir is the driest region in Central Asia.⁸ The Kopet-Dag mountains of Turkmenistan are an extension of the Iranian desert tableland. While these mountains are not large – few exceed 3,000 m – they are steep and frequently cut with deep ravines.⁹ Scattered throughout the mountains of Central Asia are oases that became focal points of sedentary settlement and urbanization. In these locations the rich yellow loess soil could be utilized thanks to the presence of a permanent water source – either rivers or underground springs – allowing a variety of crops to be cultivated. Many of these oases became stops on the routes of the Silk Road. Historically, the most important of these oases was the Fergana Valley, an area 300 km long and 170 km wide surrounded by mountains that give way to loess-rich foothills.



FIGURE 4.1 Bactrian camels, horses and bovines grazing in central Mongolia.

This nutrient rich soil is washed down onto the alluvial plains by the mountain streams.

Three-quarters of Central Asia is covered by desert. The largest of these is the Kara Kum Desert which is a primarily sandy expanse covering an area of more than 350,000 square kilometres. Only hardy, drought resistant vegetation grows here, the most predominant of which is the saxaul tree.¹⁰ Ironically, many of the arid and semi-arid plains contain yellow loess soil, which is very fertile; however, due to the lack of water in most of these areas little cultivation occurred despite the fertility of the soil. Only in areas where there was access to a constant water source could the richness of the soil be exploited.¹¹ The southern border of Mongolia is an expanse of gravelly, almost waterless plains where it joins the Gobi Desert. These conditions continue into eastern Turkestan. Very little wildlife can survive the extreme aridity of this area, and those animals who do possess unique adaptations for desert life; these include the Bactrian camel, Persian gazelle, Mongolian gazelle and Przewalski horse.¹²

At the northern edge of Central Asia lies the forest-steppe zone, which butts up against the *taiga* and boreal forests of Siberia. This area provides plentiful grazing for the traditional domestic assemblage of the nomad, the 'five snouts': goats, sheep, bovines, camels and horses; but in the northern reaches of this zone, reindeer are traditionally herded.¹³ Moving south from the *taiga*

and boreal forests we enter the steppe, a vast grassy belt that horizontally bisects almost all of continental Asia. Wherever the steppe-lands are irrigated or have access to permanent water sources the ground is covered with rich, fertile grass. Without this, or in times of drought, the grasslands shrivel up and dry up. This vast highway extends east to west from Manchuria to the Crimea and served as a major thoroughfare for most of history. These open spaces are inhabited by herd-dwelling, fleet-footed mammals like antelope, kulan and horses; animals that have few natural predators other than humans. The rivers that cut through the steppe are lined with *tugai* shrubland made up of tamarisk, poplar, maple and small shrubs.¹⁴

The climate and topographical extremes of Central Asia made an impression on the authors of antiquity, as texts discussing the region frequently point out the harshness of the environment. Herodotus writes:

The entire land I am describing experiences such harsh winters that for eight months the frost is intolerable and you could not create mud by pouring water on the ground unless you light a fire. The sea freezes over, as does the whole Cimmerian Bosphorus; and the Scythians who live within the trench conduct expeditions over the ice, driving their wagons across the land of the Sindi. Winter continues like this for eight months and the remaining four months of the year are cold here, too. But the winter differs from winters in all other regions in that during this season here there is no appreciable rainfall, while in summer it never stops raining. And at the time when thunder occurs elsewhere, it does not happen here, but instead is frequent in summer. If thunder does occur during the winter, the Scythians regard it with amazement and consider it a portent, as they do also in the event of earthquakes, no matter whether they occur in summer or winter. While horses can tolerate the Scythian winter, mules and donkeys cannot bear it here, although elsewhere horses standing on ice suffer frostbite on their legs, whereas mules and donkeys are able to tolerate it.¹⁵

While Virgil states that during winter in Scythia,

no blade is seen upon the plain, or leaf upon the tree; but far and wide earth lies shapeless under mounds of snow and piles of ice, rising seven cubits high. 'Tis ever winter; ever Northwest blasts, with icy breath.¹⁶

He continues:

Everywhere brass splits, clothes freeze on the back, and with axes they cleave the liquid wine; whole lakes turn into a solid mass, and the rough icicle hardens on the unkempt beard. No less, meanwhile, does the snow fill the sky; the cattle perish, the oxen's great frames stand sheathed in frost, the deer in crowded herd are numb under the strange mass and above it scarce rise the tips of their horns.¹⁷

Perhaps the most poignant descriptions are those of Ovid, who was exiled by Augustus to Tomis on the borders of the Black Sea. The bitter winters and unpredictable weather of the Pontic region must have come as a great shock and source of horror to Ovid, accustomed as he was to the more temperate seasons of Italy.¹⁸ In one of his poems, Ovid exclaims that,

... but summer is short. The winds blow from the north; the fens freeze hard; and those desperate tribes can march over the ice and squeaky snow to plunder whenever their mood or hunger prompts, which is all the time. The snow is nothing like what you have in Rome, but constant. It falls and lies there under a wan sun and an impotent rain that cannot melt it but freezes deeper than before.¹⁹

In one of his letters back to Rome, Ovid bitterly suggests that Maximus could draw attention to his plight by 'way of making a joke, how when the Danube freezes, the tribesmen's horses' hooves ring out on the ice'.²⁰

Lifestyle and Husbandry

The vast swathe of plains provided the ideal terrain for nomadic pastoralism. With regards to the nomads who Herodotus says ‘know nothing of agriculture’ we find both semi-nomadic and nomadic groups.²¹ Nomads can follow a migration pattern that is either ‘fixed’ – following a well-worn migratory track – or ‘un-fixed’ with an unstructured pattern of wandering that is dictated by weather rather than tradition.²² According to Strabo, nomads are those individuals who

lived not only on meats in general but also on the meat of horses, as also on cheese made from mare’s milk, on mare’s fresh milk, and on mare’s sour milk, which last, when prepared in a particular way, is much relished by them.²³

Strabo also names two tribes: the Hippemolgoi ‘mare milkers’ and Galactophagi ‘curdled-milk eaters’.²⁴ While it may seem that Strabo is over-exaggerating the nomadic love for equine dairy products, he is not. Mare’s milk and all of its related products form an essential component of the nomadic diet. Although the nomads had access to other types of milk, mare’s milk contains exceptionally high levels of vitamin C. In a diet lacking fruits and vegetables, this vitamin C was necessary to stave off diseases like scurvy (Fig. 4.2).

The horses of the steppe nomads were essentially left to fend for themselves; they received little supplemental care, especially with regards to food and water. The preferred riding horses would be kept close to the family encampment, while the others were left to fend for themselves on the pasture surrounding the camp. One unique aspect of nomadic horse husbandry was the practice of castrating male horses. Strabo writes:

It is a peculiarity of the whole Scythian and Sarmatian race that they castrate their horses to make them easy to manage; for although the horses are small, they are exceedingly quick and hard to manage.²⁵

To the Greeks and Romans this custom of castration might seem strange indeed. It does not appear to have been common practice



FIGURE 4.2 Mongolian nomads performing the afternoon milking.

in Greece or Italy to geld male horses, they preferred to keep their stallions entire whether for breeding purposes or out of habit.²⁶ There is archaeological evidence to support Strabo's statement: all of the horses found in the Pazyryk burials were geldings and ranged in age from two to 20.²⁷ The conformational quality of these horses, and the fact that they were chosen for burial, indicates that they were not gelded because of physical deformities – a number of them are excellent specimens of the steppe-type horse. If there was nothing physically undesirable about them, why were they gelded?

The practice of castration can be explained by the manner of horse husbandry on the steppe. The nomads kept their horses in large herds on the open grasslands, where they were left to roam and form their own herds. If all the male horses had been left uncastrated havoc would have resulted, particularly during breeding season. To prevent this, only the best of the colts were left entire to act as studs. The importance of these stallions to the nomads was such that they were rarely used in battle. Unlike stallions and mares, geldings have an even temperament thanks to the absence

of hormonal issues. This makes them much easier to work with, and more suited to the steppe style of mounted warfare.²⁸

The steppe nomads lived in portable tents that could be easily transported and erected quickly (Fig. 4.3). These structures needed to be large enough to accommodate families while also sturdy enough to withstand the extreme weather of the region. Aeschylus, Herodotus and Strabo all write that the nomadic Scythians lived in tents on the back of their wagons.²⁹ Strabo and Hippocrates both describe these tents as made from felt. Strabo writes 'as for the Nomads, their tents, made of felt, are fastened on the wagons in which they spend their lives'.³⁰ While Hippocrates states:

There too live the Scythians called Nomads because they have no houses but live in wagons. The smallest have four wheels, others six wheels. They are covered over with felt and are constructed, like houses, sometimes in two compartments and sometimes in three, which are proof against rain, snow and wind.³¹

No examples of these structures survive from antiquity as the organic materials they were made from have long since disintegrated. A tantalizing glimpse of these mobile tents is found on a belt plaque from Siberia dated to the first or second century CE that depicts a light, covered two-wheeled cart drawn by three horses.³² Of similar shape is a light four-wheeled cart from Barrow Five at Pazyryk that was found along with parts of a frame that may have been used for a felt cover.³³

Appearance

The horses of the Eurasian Steppe were truly a product of their environment. The nomads practised very little controlled or selective breeding. The only human influence placed upon the breeding of these horses was the practice of castration. The males chosen to remain entire as stallions were left to fend for themselves and were not guaranteed breeding rights with the mares: he still had to win his own mares and defend his harem band from the overtures of any rivals. What did this mean for the development of the steppe type? Only the toughest, strongest and most dominant



FIGURE 4.3 Traditional Mongolian gers/yurts.

stallions earned the right to breed, thereby passing on particularly desirable genes. These genes did not necessarily refer to aesthetic appeal: the priority for the nomads was not to produce beautiful horses, but rather animals capable of surviving in an environment of extremes. Arrian sums up the qualities of the steppe horse succinctly when he writes:

But where the plains offer scope for horsemen, among the Mysians and the Getae, and in Scythia and throughout Illyria, they ride after the deer on Scythian and Illyrian horses; these are at first sight not good for riding, but even if you have a very low opinion when you see them running beside a Thessalian or Sicilian or Peloponnesian horse, they have exceptional stamina. And then you may see that fast, large and proud horse giving up, but the thin and mangy one first passing it, then leaving it behind, and then pursuing the wild animal into the distance. It keeps going until the deer gives up³⁴

Climatic and environmental conditions played a significant part in the development of the steppe type. The Central Asian horse

had to be able to withstand the extremes of the open steppe with little natural shelter and minimal support from the nomads. To flourish in this environment a horse had to be hardy and intelligent: physically tough enough to withstand the rigours of the weather, as well as clever enough to find food, water and safety even in the depths of winter. The steppes of Central Asia are frequently subject to what the Mongolians call a *dzud*, 'a distinctive climatic phenomenon in northern Asian dry lands, [that] occurs when snow, ice, cold or freezing wind restricts animal access to forage, often leading to high livestock mortality rates ... Estimates are that *dzuds* take place every three to seven years.'³⁵ In the winter of 2010, Mongolia experienced one of its worst *dzuds* in recorded history. Successive weeks of extreme cold with consistent temperatures below -40 degrees Celsius combined with high snowfall rates caused a national disaster. The impact of this *dzud* was exacerbated by the poor condition of livestock heading into the winter months after a summer of drought and poor grazing. By April 2010 over six million animals had died, with 75,000 families reporting the loss of over half their livestock.³⁶

The events of 2010 provide us with an excellent example of just how harsh life could be for the inhabitants of the Northern Steppe. It is easy to see why the nomads interfered very little with the breeding of their horses, instead allowing nature to take charge. The process of natural selection allowed only the most resilient horses to thrive and breed; animals suffering from any weakness rarely survived the winter and their genes were removed from the bloodlines of the type.³⁷

The head: The head of the steppe type is rarely elegant in appearance and tends towards coarseness. It can look similar to that of the Przewalski horse in shape. Typically it consists of a flat profile, but can also be convex. Rarely do we see a dished profile. The forehead is broad. The skull appears long and heavy when viewed in proportion to the rest of the body. The muzzle is large with wide-open nostrils. The throatlatch can be thick at its point of attachment to the neck. The ears are large, well spaced and very hairy. The eyes are large, almond-shaped and spaced far apart. The overall appearance of the head is primitive, closely resembling that of the Przewalski horse. The size and balance points of the head do not preclude an animal to working in a collected frame as the



FIGURE 4.4 Silver belt plaque in the shape of a crouching horse.

heaviness and size of the skull encourage a stretched-out, downhill way of moving.

The neck: The neck is short to moderate in length when compared to the rest of the body. It is typically either thick and short, or skinny and ewe-necked. It attaches low down on the shoulders. Flexion at the poll is rarely depicted. This is largely due to the thickness of the throatlatch and the overall head and neck conformation.

The shoulder and chest: The shoulder is moderately sloping to upright, suggesting an animal with a medium to short stride. The chest is short and average in width, but very well-muscled.

The body and trunk: The back is typically close-coupled. The ribs are well sprung with a deep girth when viewed in proportion to overall size. This indicates the presence of an impressive set of lungs and lots of room for the heart. When the animal is in good summer condition, the ribs are often still visible. This is due to the breadth of the rib cage. The deep girth and well sprung ribs indicate an animal with impressive endurance abilities, capable of maintaining a moderate to swift, steady pace over long distances. The back is sometimes roached. This, combined with the visible

ribs can create the impression of a gaunt, unfit animal when he is actually very healthy and fit. A roach back would not have any significant physical impact on the horse, but it would make riding bareback an uncomfortable experience. Such a horse would not possess the 'double-back' so praised by Xenophon et al. This could account for the necessity of using a padded saddle blanket like those found in the Pazyryk tombs.

Hindquarters: The hindquarters are moderate to small but well shaped. There is no excess fleshiness or muscling. The size and shape of the hindquarters suggest an animal who is not given to sudden, short bursts of speed or rapid changes of direction; instead they indicate a horse who can maintain a regular, steady pace for a considerable length of time over uneven terrain.

Legs and feet: The legs are average to short when compared to overall height. They are thick with dense bone, creating a stocky appearance somewhat at odds with the 'gauntness' of the body. The legs are well shaped with short cannons, large joints and a typically straight and symmetrical appearance. The pasterns can tend towards uprightness, creating a more jarring stride for the rider, but they are rarely long and sloping. The hooves are well shaped and strong. The legs and feet suggest a sure-footed animal with no great length of stride, but with sound limbs capable of withstanding the rigours of regular, long-distance work.

The overall appearance of the steppe type is one of workman-like efficiency. The dense legs and close-coupledness indicate that the animal is capable of carrying a considerable amount of weight in proportion to his size. These awkward looking horses are not suitable for the work of collection or precision drills, while their free-range lifestyle did not predispose them to the perfect obedience that was required by the mounts of Near Eastern and Mediterranean cavalries. Instead these animals were expected to think for themselves and thus were responsible for where they placed their feet as well as keeping their own balance when moving at speed, no matter what their riders were doing. The steppe horse was a working endurance animal who could keep a steady, rapid pace for hours on end. This regularity allowed the rider to do almost anything on horseback. As Ammianus wrote of the Huns:



FIGURE 4.5 A typical Central Asian/Steppe horse in traditional Mongolian tack.

From their horses by night or day everyone of that nation buys and sells, eats and drinks, and bowed over the narrow neck of the animal relaxes into a sleep so deep as to be accompanied by many dreams.³⁸

These horses were ridden with the simplest of equipment: a basic bridle and loose-ring snaffle. In Mongolia many of the horses, including one of my own mounts, were ridden with the bit hanging under their chin, making it easier for the animal to eat and drink while on the move.

The steppe horse was expected to be a good all-around working animal. Such is still the case with the Central Asian horse today. He performs a whole retinue of tasks ranging from long distance travel to herding, racing and breeding. These animals are not 'trained' to the same degree as North American or European horses, but simply broken to saddle. When providing a reason for the castration of male horses Strabo states that 'they are exceedingly quick and hard to manage'.³⁹ The rider is assumed to be a fully capable horseman accustomed

to life in the saddle and thus perfectly capable of controlling an unruly animal.⁴⁰

THE NEAR EASTERN HORSE

Horses have played a prominent role in the cultures of the Near East from the time of their introduction down to the present day. Although *Equus caballus* was not indigenous to the Near East, he was very quickly adopted into the day-to-day workings of warfare, religion and society; as a result, the horse became a necessary accoutrement of combat and an overwhelmingly apparent status symbol. The horse seems to have made his way into the Near East by around 2400 BCE: artistic depictions of equines from Susa and northern Mesopotamia date to this period.⁴¹ The earliest mention of the horse in Near Eastern literature comes from Sumerian texts dating to the Ur III period (c.2100–2000 BCE). The references in these Sumerian fables suggest a degree of familiarity with the horse and his idiosyncrasies. One such fable states ‘You sweat like a horse; (it is) what you have drunk’; while in another we read: ‘The horse, after he had thrown his rider, [said]: “If my burden is always to be this, I shall become weak!”’⁴² In the Sumerian *Curse of Agade*, the horse is called the ‘ass of the mountains’.⁴³

The importance of the horse to the aristocracy is evident from the substantial herds that members of the elite from across the Near Eastern world built up, both for their own personal use and for the battlefield. Some monarchs made no attempt to disguise their affection for these animals. The Nubian Pharaoh Piankhi was a great lover of horses. The Piankhi Stela records an incident when:

His majesty proceeded to the stable of the horses and the quarters of the foals. When he saw that they had suffered hunger, he said: ‘I swear, as Re loves me, and as my nostrils are rejuvenated with life, it is more grievous in my heart that my horses have suffered hunger, than any evil deed that thou has done, in the prosecution of thy desire ...’.⁴⁴

The same *stela* records a meeting between the pharaoh and local rulers from the Delta region during which the kings and princes requested Piankhi:

'Dismiss us to our cities, that we may open our treasuries, that we may choose as much as thy heart desires, that we may bring to thee the best of our stables, the first of our horses.' Then his majesty did so.⁴⁵

The monumental reliefs of Ramses II depicting the battle of Kadesh record the names of the pharaoh's horses:

The great horse of his majesty: 'Victory in Thebes' of the great stable: 'Usermare-Setepnere-Beloved-of-Amun.'
Great first span of his majesty [named]: 'Mut-is-Satisfied' of the great stable: 'Usermare-Setepnere-Beloved-of-Amun.'
Great first span of his majesty [named]: 'Meriamon' of the great stable of Rameses-Meriamon.⁴⁶

The Amarna letters, records of correspondence between the various ruling powers of the Bronze Age world, give further evidence of the prestige and value given to the horse. The formulaic greeting at the beginning of each letter includes a wish that 'your horses be very well'.⁴⁷ Horses and horsemanship remained important to the rulers of the Near Eastern kingdoms during the Achaemenid period. Darius I's inscription at Naqsh-I Rostam records that he is:

As a horseman, I am a good horseman.
As an archer, I am a good archer both on foot and on horse.
As a spearman, I am a good spearman both on foot and horse.⁴⁸

In another inscription from Naqsh-I Rostam, Darius praises 'good men and good horses'.⁴⁹ Horses were a key item of trade and negotiation, with rulers sending them to each other as gifts and bribes. The Mitannian king, Tushratta, sent Amenhotep III 'booty from the land of Hatti . . . a chariot, two horses and a virgin. And as a gift for my brothers I send five horse rigs'.⁵⁰ In an attempt to be welcomed – or at least recognized – by the great powers of the Near East, Ashurbanipal of Assyria sent Akhenaten of Egypt 'a beautiful chariot, two horses'.⁵¹ Horses and their accoutrements were part of the wedding gifts given to Amenhotep II on his

marriage to the Mitannian princess Taduhepa.⁵² 'Spans of horses without limit' were included in the dowry of a Hittite princess married to Ramses II.⁵³ They were a regular part of tribute lists and, along with their equipment, a much desired prize of war.⁵⁴ During his thirteenth campaign, Thutmose III received from Syria as tribute '328 horses; 522 slaves, male and female; 9 chariots wrought with silver and gold; 61 (painted chariots); total 70'.⁵⁵ Assurnasirpal received:

Tribute from the lands of Kirruri, Simesi, Simera, Ulmania, Adaush, [from] the Hargeans and Harmaseans – horses mules, cattle sheep, wine, vessels of copper⁵⁶

During the third year of his reign, Shalmaneser III records:

To Arzashku, the royal city of Arrame, the Urartean, I drew near. Arramu, the Urartean, became frightened at my mighty, awe-inspiring weapons, and my grim warfare, and forsook his city. He went up into Mount Adduri. I climbed the mountain after him; fought a terrible battle in the midst of the mountains; 3400 of his warriors I slew with the sword. Like Adad I rained destruction upon them. With their blood I dyed the mountain like red wool. I took his camp from him. His chariots, his cavalry, his horses, his mules, his colts (?), his goods, his spoil, his property, in large quantities I brought out of the mountain.⁵⁷

During his eighth campaign against Elam, Assurbanipal took 'chariots, coaches, wagons, whose ornaments were of sasiru and zahalu; great horses [and] mules, whose trappings were of gold and silver, I carried off to Assyria'.⁵⁸ Correspondence between the Assyrian king and his officials regularly deals with the arrival of tribute horses. One such document from Nabushumiddin to Esarhaddon records that:

One hundred and twenty-one riding horses, one stallion (?) a riding horse, a total of one hundred and twenty-two riding horses have arrived from the commander-in-chief. They are not complete. Five riding horses have arrived from the

prefect city of Calah. They are not complete. A total of one hundred and twenty-seven riding horses have arrived today, ... yoke horses from the land of Barhalza [and] the city of Arrapha which reached me yesterday [and which] I have [ordered] sent to the king my lord, I shall have ready in line at dawn. The Median draught horses, which they harness together regularly, I shall get ready according as the king my lord has sent. [Dated] the fifth day.⁵⁹

The above letter is one in a series of communications between Nabushumiddin and Esarhaddon over a three-month period. These letters – the ‘Horse Reports’ – from the Nineveh archives, record the arrival of tribute horses in the city. The horses are classified into the following categories: Kusean yoke horses, Mesean yoke horses, stud horses, cavalry horses for riding and mules. The Kusean horses, from Kush in Nubia, are of a lighter desert type. The Mesean horses came from Iran and must have resembled the Nesean horses of the Achaemenid period. Postgate suggests that the Mesean horses were intended for service to the gods. I would add royalty to this as well. The cavalry horses are not designated as coming from a particular region. In total the number of horses and mules recorded as arriving at Nineveh over a three-month period equals 2,911 animals – an average of over 100 equids per day.⁶⁰

So important was the horse to royal status and warfare in the Near East that kings would send letters requesting or even demanding the trade of horses. The Hittite king Hattusilis III wrote to Enlil III requesting of his ‘brother’ to

send me horses, young good sized stallions. The stallions your father sent me were good but have broken down, and old horses have no stamina. At Hatti there is severe frosts and an old broken-down horse does not live long. Therefore send me, brother, young stallions. Jade is plentiful in my country. Ask your messenger, brother, and he will tell you.⁶¹

The earliest such ‘diplomatic’ letter between royal brethren is a request from the Irkabdamu, the king of Elba to the king of Hamazi for equids of the finest quality in exchange for the gifts sent with

the letter.⁶² These gift exchanges could go awry, particularly if the recipient felt he was being 'stiffed' by his compatriot. Such an instance occurred in a diplomatic gift exchange between the kings of Ekallatum and Qatna in which the king of Qatna sent 20 minas of tin in exchange for two horses from Ekallatum. The king of Ekallatum was not impressed by this and came out of the whole process feeling rather cheated.⁶³

Environment

The Near East lies within a complex environmental area. The climatic variations found here as well as its placement at the crossroads of the ancient world led to the development of a diverse group of cultures migrating to, settling and thriving within its boundaries. The movement of people into and across the Near East has always been connected to climate. Groups migrated in search of more hospitable regions to settle. On account of its great topographical variations the inhabitants of the Near East, more so than any other region in antiquity, blended sedentary and nomadic, urban and rural, pastoral and agriculturalist lifestyles to suit the surroundings in which they lived. In all of this, the horse became a toll of the utmost importance to success.

From a geological point of view, the region we define as the Near East literally is a crossroads, situated as it is at the confluence of three continents: Africa, Asia and Europe, as well as three tectonic plates. The Near East is typically viewed as an arid region, with pockets of fertile land along the flood plains of the Tigris and Euphrates. Indeed, throughout recorded history and certainly during the periods studied in this book this has been the case; however, the climate of the Near East has not always been such. At the beginning of the Quaternary period the Near East became very green and humid, creating an ideal passageway for *Homo erectus* and *Homo sapiens* to travel through as they migrated north from the increasingly inhospitable environment of Africa. During the Late Glacial Period the Near East developed a cool, humid climate, causing much of the region to be covered with lakes and swamps. At the end of the Late Glacial Period the climate started to warm up, melting the highland glaciers and causing a decrease in precipitation. This in turn led to the drying up of most of the lakes, turning

previously well-watered regions in desert. As a result, humans and animals were forced to migrate to areas provided with a constant water source – the fertile regions of Mesopotamia were especially popular – and make early attempts at permanent settlement creating the agricultural revolution of the Neolithic period.⁶⁴

The topography of the Near East is varied, ranging from rich alluvial plains to craggy, inhospitable mountains. Within the many topographical zones are what we might call ‘micro-environments’, which developed their own particular cultures and ways of life to suit the available natural resources. Thus, along parts of the Tigris and Euphrates cities and sedentary populations flourished. The settled inhabitants took advantage of the fertile soils and constant water source to develop intensive agricultural and irrigation practices, while the rivers served as easy transportation routes for the goods they produced. Once we leave these fertile areas and enter the semi-arid and arid plains, permanent agriculture became scarce due to climatic conditions that can range from well below freezing to over 40 degrees Celsius.⁶⁵ Here the pastoralist reigns supreme, grazing his herds in the highlands during the hot summer months and bringing them down to the sheltered lowlands in the winter. This lifestyle does not encourage the development of permanent settlement or urban centres, but relies on the fluidity of movement and migration to be successful.

Life in the ancient Near East was controlled by two major factors: water and natural boundaries. Water, for the most part, dictated lifestyle, determining whether a population was sedentary, nomadic or somewhere in between. It also dictated the pattern of urban and agricultural development. The numerous natural barriers and boundaries created by rivers, seas, mountains and deserts controlled the movement of people and animals. These barriers dictated where and when people and animals could travel across or through them, and thus influenced the creation of trade routes, the isolation or lack thereof of kingdoms and the pattern of military campaigns and conquests.⁶⁶

Lifestyle and Husbandry

The geographical variation of the Near East led to the establishment of diverse ways of life within the region; ranging from

permanent settlement in major urban centres like Babylon, to true nomadic pastoralism. Essentially, Near Easterners followed three main types of lifestyle: urban, sedentary agriculture and nomadic pastoralist. There could be overlap between these: an individual might live as a nomad for part of the year, and in a settled village the rest of the time. Horse husbandry, then, became closely tied to the manner of life his owner followed.

The ancient sources make reference to stud farms located throughout the Near East. Strabo tells us that:

Apameia also has a city that is in general well fortified; for it is a beautifully fortified hill in a hollow plain, and this hill is formed onto a peninsula by the Orontes and by a large lake which lies near by and spreads into broad marshes and exceedingly large cattle-pasturing and horse-pasturing meadows ...

Here, too, were the war-office and the royal stud. The royal stud consisted of more than thirty thousand mares and three hundred stallions.⁶⁷

These farms could range from small, privately owned facilities to large-scale, highly organized breeding operations dealing with a substantial number of animals. In parts of the Near East, horse breeding was an industry that took place on a scale far greater than anything found in the Mediterranean, and much more organized than in Central Asia.⁶⁸ The Alalakh tablets from Alalakh in Syria provide the earliest extant record of organized, state-run horse breeding in the ancient world, dating to the mid second millennium BCE.⁶⁹ Documents from the Mitanni, Kassites and Egyptians can be interpreted as a basic type of studbook or breeding records listing chariot horses by the colour of the coat and the name of their sire. The Nuzi tablets include records of highly organized, state-run breeding farms and training facilities for the production of chariot horses.⁷⁰ As we have already seen, the 'Horse Reports' from Nineveh record the daily arrival of tribute horses. The differentiation between riding horses and stallions within these documents suggests that horses designated as stallions were intended for breeding purposes only. This degree of organization indicates that large-scale horse breeding took place

by the mid-second millennium BCE. Solomon is said to have maintained 'forty thousand chariot horses in his stables and twelve thousand cavalry horses'.⁷¹ Wealthy families also maintained their own breeding programmes, serving to provide mounts for their own personal chariotries or cavalries as well as for the state. Herodotus tells us that:

Tritantaichmes son of Artabazos, who ruled this province [Babylon] for the King, received daily revenues of a full artabale of silver ... And besides the warhorses he maintained, he had his own private herd of 800 stallions and 16,000 mares, one stallion for breeding with every 20 mares.⁷²

Large-scale stud farms were possible only in areas where topography and climate provided an environment capable of sustaining substantial numbers of horses. The most renowned of these regions was Nesaea in Media whose horses were long prized by royalty. The Assyrian king Sargon recalls: 'With a view to subjugating the Medes, I strengthened the defences of the neighbourhood of Kar-Sharrukin. 34 districts of the Medes, I conquered and brought them within the border of Assyria. I imposed upon them a yearly tribute of horses.'⁷³ Tiglath-Pileser III sent his official Assurdaninanni 'against the powerful Medes of the east. 5000 horses, people, cattle and sheep, without number, he carried off.'⁷⁴ Many centuries later, Arrian tells us that:

Alexander is said to have also seen the plain in which the royal mares were pastured; the plain itself was called the Nesaeian and the horses Nesaeian, as Herodotus tells us; and there were originally about one hundred and fifty thousand mares, but at that time Alexander found no more than fifty thousand, as most of them had been driven off by robbers.⁷⁵

Strabo cites both Media and Armenia as home to substantial breeding operations:

This, as well as Armenia, is an exceptionally good 'horse-pasturing' country; and a certain meadows there is called 'Horse-pasturing,' and those who travel from Persis and

Babylon to the Caspian Gates pass through it; and in the time of the Persians it is said that fifty thousand mares were pastured in it and that those herds belonged to the kings.⁷⁶

With regards to Armenia, he writes:

The country is so very good for 'horse-pasturing,' not even inferior to Media, that the Nesaean horses, which were used by the Persian kings, are also bred there. The satrap of Armenia used to send to the Persian king twenty thousand foals every year at the time of the Mithracina.⁷⁷

Armenia (ancient Nairi and Urartu) was a key horse-breeding region from the second millennium onwards. Hittite and Assyrian rulers expended much time and effort to secure a supply of horses from Urartu, whether by trade or force. This source of horses was so important that any potential threat of defection by the Urartians was cause for swift and brutal military action.⁷⁸ Sargon took from Mannea, a region just to the south-east of Armenia, 'Large draught horses'.⁷⁹ A letter from Sharruemurani to King Sargon mentions what must have been a state/palace-owned stud farm in Armenian land:

To the king my lord, your servant Sharruemurani. May it be well with the king my lord. It is well with the pack of animals of the king my lord. It is well with the servants of the king my lord. It is well with the land of Bit-Zamani. Now the servants (?) and . . . I shall cause to ride and the grain (?) I shall cut for the walled (?) enclosure of the animals, (that is) for the mares. For fifteen (horses) of the month Tammuz let me go. The eleven hundred of the king my lord are not considered. Directly opposite me I see fifteen. The work of Dur-Sharruukin I have inspected.⁸⁰

The purpose of the large stud farms must have been first and foremost to provide chariot and/or cavalry horses. The *Royal Annals of the Assyrian Empire* record the importance a ruler placed on increasing the number of horses bred in his kingdom. The *Annals* of Adad-Nirari II boast of how the king

Built palaces throughout my land. Plows throughout my land I constructed. The grain piles I increased over those of former days and heaped them up. Horses broken to yoke I increased⁸¹

The *Kikkuli Text*, written by a Mittani horseman of that name during the reign of the Hittite king Suppilulimas I, deals with the selection of suitable chariot horses and dictate a five-month culling process for weeding out unsuitable animals and training the acceptable equines for war. Similar texts have been found at Hattusas and in Syria dating to a slightly later period. The methodological, straightforward nature of Kikkuli's instructions suggest he was heir to a long-standing Mittanian equestrian tradition. These didactic texts explain in much detail a regiment of feeding, grooming and training.⁸² This suggests that green young stock arrived at the state stables in large numbers from the outlying stud farms. The first task of the horse masters/trainers was to identify those animals worth the time and expense of training. Kikkuli's method effectively takes an untrained colt or filly from a raw prospect to a fit, trained chariot horse over a process of several weeks. This is in keeping with the Urartian tradition of not investing time or funds into the extensive training of a horse until his abilities had been assessed and approved of.⁸³ We also know that specific areas like Urartia were renowned for their horses and a primary supplier of large numbers of horses for the chariotries and cavalries of the Near East.

Documents from the Near East provide our most extensive knowledge concerning equine diet in the ancient world. These documents are important not only because they tell us what cereals and grasses were commonly fed, but also because they can help to indicate what kind of work a horse was used for, while potentially telling us something about the type of horse being used as well. Based on the rations detailed in them, the tablets from Chagar Bazar in northern Syria appear to differentiate between two types of horse: the warhorse and the ceremonial/parade horse. Tablet 929 records:

List of 52 homers, 50 *sila* of barley, in the *ki-na-te-e* measure, as (one month's) fodder for the following animals: 20 horses



FIGURE 4.6 The rolling, grassy hills surrounding the Hittite Capital of Hattusas (modern Boğazkale) in Anatolia.

at 5 *sila* (daily) apiece, 3 yokes at 15 *sila* (daily) apiece, 10 asses at 3 *sila* (daily) apiece.⁸⁴

Tablet 938 records ‘Note of 52 homers, 50 *sila* of barley, in the *ki-na-te-e* measure, as fodder for 3 “yokes” at 15 *sila* daily apiece’.⁸⁵ Compare this to tablet 972 which records:

A total of 1 homer, 45 *sila* of barley, in the *ki-na-te-e* measure, for animals, as follows: 30 *sila* for 4 ANSE.NUN.NA at 7.5 *sila* each, 20 *sila* for 1 ‘team’, 40 *sila* for 4 horses (ANSE.KUR.RA) at 10 *sila* each, 15 *sila* for 3 ANSE.LA.GU at 5 *sila* each⁸⁶

Aside from ANSE.LA.GU which must refer to a ‘yoke’ of three horses, the equines in tablet 972 receive considerably larger rations than their counterparts in tablets 939 and 938. Further, as Gadd points out, the ‘team’ must equal a pair of horses. As I have already noted, most war chariots in the Near East at this time were pulled by three horses thus the ‘team’ must refer to a conveyance of a different sort. Gadd suggests that this might have been a state

chariot of sorts either for a royal personage or a deity.⁸⁷ If this is true, and I am inclined to agree with Gadd, why are these horses being fed more than those in a 'yoke'? Pulling a ceremonial vehicle is presumably less taxing on the animal than a military chariot in battle. The ceremonial parade team would rarely exceed a walk or slow jog, while military horses were required to maintain a steady pace with sudden bursts of speed and would expend considerably more energy than a parade horse. The answer lies in the type of horse that was being used. The Near East produced two distinct types of horses: a lighter, leaner desert horse and the robust Nesaean type. I believe the 'yoke' horses were of the lighter type, who did not require large amounts of fodder to maintain fitness while the ceremonial 'teams' were the heavier Nesaean type. These heavier equines did require a particular, high-protein diet to maintain condition.⁸⁸

The Persepolis Fortification Tablets contain numerous records of rations allotted to horses – in this cases for animals used in the royal courier system. Postgate categorizes the horses as 'express' post horses for messengers on an urgent mission and regular travelling horses. The rations given to each type differed depending on work load and age: ranging from 1QA to 4.5QA per day while at rest. Horses classified as mature received the highest rations, while those termed young received the lowest. The rations were made up primarily of grains, but could also include special rations that included beer and wine.⁸⁹ For example, PF 1685 records:

[BAR of] grain, supplied by Mirayauda, Kakka received, and it was taken [to the place] Irmus. 1 horse daily consumes 1 BAR. 7 horses daily consumed each 3 QA. 2 horses daily consumed each 2 QA. [For] a period of 4 months [and] 10 days.

PF 1763, meanwhile, records '7.5 [BAR of] wine, supplied by Marriyadadda, Pumesa received and fed (?) [it] to 3 young horses, [for] 2 months'. The rations allocated increased when a horse was in 'active service' – i.e. on the road. This makes sense – horses at the post station were on a maintenance diet and it was essential they not gain too much weight. While on messenger duty, on the other hand, a horse would use quite a lot of energy and calories and thus required larger portions of food each day.⁹⁰

Appearance

Near Eastern Type 1: The Nesaeen Horse

Head: The first impression is of a large, heavy head. When viewed in relation to overall size, however, the head is actually moderate to short in length. The profile is convex, giving the horse a distinctive ram's head shape. The bulge is not at the forehead, as with the *jibbah* found in Caspian and Arabian horses, but along the length of the skull ending in a straight to slightly Roman nosed muzzle. The muzzle is large with well-shaped, moderately sized nostrils. The forehead is broad and the eyes well-spaced. The eyes are usually large, but do occasionally appear small when viewed in relation to the overall size of the skull. The ears are small and finely shaped. The throatlatch is adequate, though it frequently looks thickset given the breadth and musculature of the neck. Head carriage is usually slightly flexed at the poll and jaw, but ahead of the vertical.

Neck: The neck is thick, cresty and robust. This gives it a short, stubby appearance, but in actuality it is of a moderate length with a smoothly arched, well-developed crest. The attaches to the midpoint of the shoulder and is invariably depicted as upright, rising to a slightly flexed poll. The thickness of the neck muscles suggests potential difficulty for developing lateral suppleness along its length, the throatlatch is wide and open, allowing plenty of room for the animal to swallow and breathe, even while in an extreme state of collection. The overall head to neck ratio is nicely proportionate.

Chest and shoulders: The chest is broad and well muscled, but not so wide as to give a disproportionate or excessively thick appearance. The shoulder is moderately sloping, allowing for a good length of stride and comfortable, collected gait, but not suitable for producing a large, extended galloping stride.

Hindquarters: The hindquarters are massive and round, but in proportion to the rest of the body. The Nesaeen horse has the most powerful hindquarters of the ancient types. Much like the American Quarter Horse of today, the Nesaeen was capable of sudden starts and stops, thanks to his robust hindquarters. As with the forequarters, the hindquarters allow for a good degree of collection and elevated movement.

Legs: The legs are moderate in length, but thick with a good measure of bone; this can make them appear short and stocky when



FIGURE 4.7 Nesaeen horses pulling the royal chariots, c.sixth–fifth century BCE, depicting the lighter Near Eastern type.

viewed with the entire body. The cannons are short; the knees and hocks are large, clean and well formed. The hocks are typically ‘well let down’. The pasterns are short and slightly sloping. The overall impression of the legs is one of sturdiness. The hooves are of a good size and in proportion to the overall body mass.

The Nesaeen type presents the image of a stocky, robust, well-built working animal. The horse is noticeably well muscled and is, as a result, very powerful. His close-coupled build and sturdy legs make him an excellent weight carrier, and the Nesaeen horse was capable of carrying the heaviest loads of all the ancient types. On account of his mass this type is not particularly fast over long distances, but capable of short bursts of speed thanks to the size and shape of his hindquarters. The larger size of this type required high protein food to ensure proper skeletal and muscular development, as well as to maintain condition and fitness. Foods that were high in fat or rich had to be fed in moderation as this type was likely susceptible to weight issues. The Nesaeen was capable of advanced collected work; this type of work was of great benefit to the animal as it would increase his suppleness and working life.

Near Eastern Type 2: The Southern Steppe Horse

Head: The head is long and slender with a flat profile. It has a chiselled, clean-cut, dry appearance. The forehead is broad with

large, well-spaced eyes. The ears are long, slender and well shaped with little hair. The muzzle is delicate and slender, with large, wide-open nostrils. The throatlatch is clean and open. The shape of the head gives the animal a refined, intelligent appearance. The length and size of the skull are in proportion to the rest of the body.

Neck: The neck is long and slender but not skinny. It has moderate muscling and is typically well formed with lean muscles and an arched crest. The neck is set high up on the shoulder, giving a natural elevated head carriage which when combined with the shape of the head encourages a naturally light forehead. If the neck gets too long in proportion to the rest of the body there is a loss of suppleness and flexibility. On the other hand, a proportionately long neck can act as a good counter-balance to the hindquarters. A good length of neck also allows the horse to stretch out and open up his shoulder, thus lengthening his stride to a maximum extent. Even the highly collected horse must lower and stretch his neck to properly lengthen stride.

Chest and shoulder: The shoulder is long and sloping, allowing for an easy lengthening of stride. The long, sloping shoulder also



FIGURE 4.8 Artist's sketch of a horse, c.664–610 BCE.

encourages a loose, flowing gait. The chest is of moderate-to-narrow width, but well muscled.

The body and trunk: The back is moderate to long, making it more difficult for the horse to rotate his lumbosacral joint to bring the hindquarters well underneath him into a truly collected frame. The ribs are well sprung and the girth deep. The back is typically flat and well muscled, though not nearly as broad as the Nesaeen type. The body presents a lean appearance with a tucked-up stomach and visible ribs. This type of horse could be slab sided; this is not a major fault, but would give the rider less mass to wrap his legs around. The deep girth and well sprung ribs indicate plenty of room for the cardiovascular and respiratory systems to work, particularly when under stress. The Southern Steppe type was an excellent endurance animal.

Hindquarters: The hindquarters are moderate in relation to the overall body mass. They are rounded and well shaped with lean muscle. The size and shape of the hindquarters are ideal for long periods of steady work, jumping and substantial speed.

Legs: The legs are long, clean and slender. There is no excess fleshiness. The knees and hocks are clean and large, while a good measure of bone indicates durability and strength. The cannon bones are moderate to slightly long. The hooves are a good size for overall body mass.

The overall impression of this type is lean and sleek with long, angular lines. This type is well adapted to life in an arid environment, presenting a clean-cut, chiselled and dry appearance. The neck, shoulder and leg conformation give a loose, free-flowing stride without flashy or high leg and knee action, allowing the horse to cover ground while expending less energy than other types. The strong, long and light leg conformation found on this type required less energy to move the limbs and resulted in the natural tendency to lengthen stride, allowing the horse to move at speed more efficiently – one long stride being more efficient than two shorter ones. Further, this conformation allowed the horse to maintain a comfortable, sweeping, steady gait over long distances. This type was a versatile animal, suited to long-distance travel, hunting and light to moderately armed cavalry. The leanness of the body required little food to maintain condition. Their ‘dryness’ allowed them to cool down quickly after hard exercise.

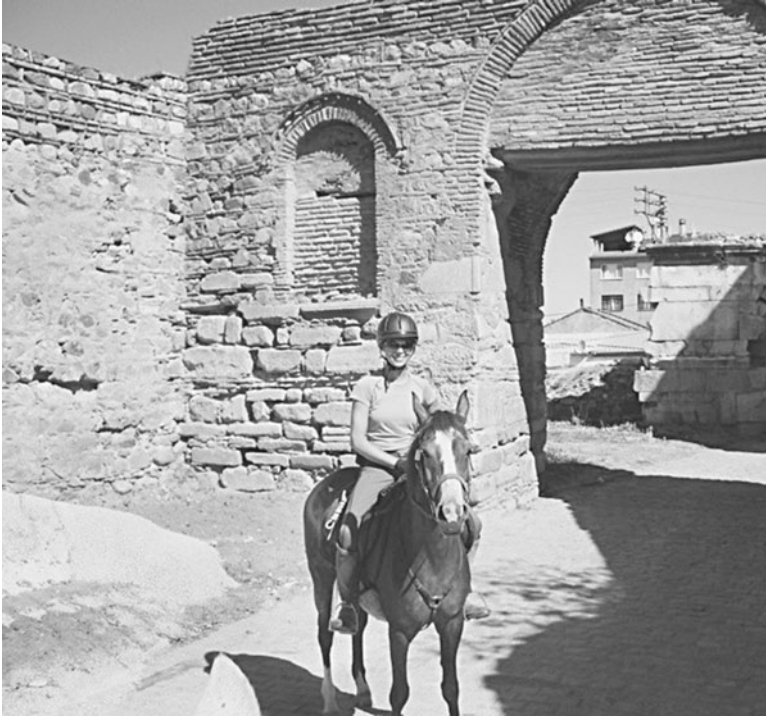


FIGURE 4.9 The author and Kelebek outside the Roman gates of ancient Nicea (modern Iznik). Kelebek is a very good example of a Near Eastern Type 2 horse.

THE MEDITERRANEAN HORSE

The Mediterranean world produced what could be considered the most unlikely horse culture of the ancient world. The climate and topography of the Mediterranean counties were far from ideal for large-scale horse breeding; only select regions such as Thessaly and Etruria provided the well-watered, grassy meadows necessary for this. As a result of these topographic restrictions horses became high priced luxury items. The Mediterranean horse was not used for day-to-day labour; their role in society was reserved for use in sport, spectacle and war. The only ‘menial’ job performed by equines was transportation as ridden mounts or carriage horses. In the Greek world:

Horses were not required for heavy work, which was carried out by oxen, donkeys and mules – animals that require much less fodder. So the Greek horses were first and foremost mounts and race-horses.⁹¹

Likewise,

In Roman times horses were used for three purposes: for cavalry, for chariot-racing in the circus, and for riding and pulling carriages; they were not employed as draught-animals, either for pulling implements or for road haulage. Their role in the economy of the farm was, therefore, restricted to that of providing sires or dams for the breeding of mules and hinnies.⁹²

This inherent Mediterranean association of horses with luxury had a significant influence not only on how they and their owners were viewed by society, but also management, training and use – particularly in war. The role of the horse in Mediterranean life is closely tied to the cost of breeding and raising horses in an environment that is, for the most part, less than ideal for such purposes.

Environment

The Mediterranean region is the only place in the world where an inland sea is touched by three continents: Asia, Europe and Africa. This unique geographical setting makes the Mediterranean Basin a rich and complex geological zone. No single type of ecosystem dominates this region. Instead, it is an ecological mosaic made up of forests, shrubland, plains, mountains, wetlands and thousands of islands. Of all the regions discussed in this book, the Mediterranean Basin and its complex ecology is without a doubt the most inextricably linked with human evolution.⁹³ The Mediterranean Sea, much like the Near East, was a central crossroads throughout history. The Near East served as a centre-point for overland travel and trade, but the Mediterranean was a centre of sea transport. As we shall see, the lands of the Mediterranean Basin are by no means homogenous, but they are all connected by one thing: the sea.



FIGURE 4.10 The grassy meadows of Pylos in south-western Greece. This is one of the few regions suited to horse husbandry in the Greek peninsula.

The diverse mosaic of territories surrounding the Mediterranean is not always the most benevolent of environments. Nonetheless, urbanization and agriculture have flourished across the region. Why? Even though it was not always an easy place to live, this region was a tactically and economically favourable location. Thus, the inhabitants of the Mediterranean lands have manipulated and molded its ecosystems to suit their needs for thousands of years: close to 10,000 in the Eastern Mediterranean and 8,000 in the west.⁹⁴ From the beginning of the Holocene period, the Mediterranean Basin became a melting pot of people, animals and plants as they migrated into previously glacier-covered regions to escape the increasingly hot climates of the south. The climate change of the early Holocene began a trend that would continue for thousands of years in the Mediterranean and Near East. The centrality of these regions led to the development of numerous power civilizations, all of which had a massive impact on the Mediterranean landscape:

Apart from sheer, high cliffs, and some very remote mountainous areas, there is probably no square meter of the Mediterranean Basin which has not been directly and repeatedly manipulated and, one might say 're-designed' by humans.⁹⁵

The sea is central to our notions of the Mediterranean world as well as the ecological evolution of the region. Nonetheless, it is difficult to define what exactly delineates what we call the 'Mediterranean' and where its boundaries lie. Other than proximity to the sea itself, a primary factor connecting 'Mediterranean' lands is climate patterns: hot, dry summers and mild, wet winters.⁹⁶ Aside from this climatic connection and the consistent presence of certain species of vegetation like the olive and holm oak, the Mediterranean Basin is a remarkably heterogeneous region. The sea itself is unique in the world. The basin is almost completely closed. It attaches to the Atlantic Ocean only through the 12 km-wide Strait of Gibraltar, while at its eastern end it connects to the Black Sea through the narrow straits of the Dardanelles. Given the morphology of the Mediterranean, we should not view it as a single, massive aquatic mass, but rather as a collection of smaller seas and basins.⁹⁷ As such, we can split the Mediterranean into nine specific regions: the Alboran Sea, the Balearic Sea, the Tyrrhenian Sea, the Ligurian Sea, the Adriatic Sea, the Ionian Sea, the Aegean Sea, the Algeio-Provincial Basin and the Levantine Basin.⁹⁸

The geographical layout of the Mediterranean as we know it today was formed primarily during the Tertiary era through the shifting and collision of tectonic plates and microplates. These movements took place over hundreds of millions of years, beginning with the splitting of Pangaea and the Tethys Ocean around 200 million years ago. These shifts had the greatest impact on the Mediterranean during the Pliocene and Pleistocene periods between 5 million and 12,000 years ago, when movement between the African and Eurasian plates increased the elevation of the Alps while at the same time shrinking the size of the Tethys Oceans which came to survive only as the Mediterranean, Black, Aral and Caspian Seas. The collision of the two plates had a massive impact on Mediterranean topography as it created a ring of mountains

that surrounds the entirety of the basin except the small region between Egypt and Tunisia. These frequently high ranges have an important impact on Mediterranean ecology as their presence causes sharp climatic variations. The active movement of several microplates in the Mediterranean makes this region an active seismic and volcanic zone.⁹⁹

If we include the Black Sea, the waters of the Mediterranean cover an area of approximately 2.5 million square kilometres, stretching 3,700 kilometres east–west and 1,600 kilometres north–south. The average depth of the sea is 1,500 metres, making it quite shallow and unpredictable for sailors. The predominant topographical feature of the region is its mountains, which include the Alps, Pyrenees, Apennines, Caucasus, Pontic, Pindos and Taurus ranges, the mountains of Lebanon; the Rif, Kabylie, Atlas and Anti-Atlas ranges of North Africa as well as the numerous cordilleras of the Iberian peninsula. These mountains have an important influence on the flora and fauna of the region as they are the sources of the many rivers and watersheds that crisscross the area.¹⁰⁰

The one major unifying element of the Mediterranean Basin is its bimodal climate of hot, dry summers and temperate, wet winters – but this does not make the region climatically homogeneous. Factors like rainfall can vary from less than 100 mm per year in the deserts of North Africa and Syria to over 4 m per year in parts of Southern Europe. All areas of the Mediterranean receive at least two months per year where there is no precipitation whatsoever, creating a significant stress on plant and animal life. Mean annual temperature ranges from 2–3 degrees Celsius in some mountain ranges to over 20 degrees in North Africa. Despite its predictable bimodal climate, the weather patterns are often notoriously unpredictable thanks to ‘the wide range of diurnal temperature fluctuation at certain seasons, the violence of certain winds, and calamitous short-lived rainfall events’.¹⁰¹ Heavy rainfall is particularly devastating, causing economic catastrophe when the resulting flood waters wash away crops, drown livestock and devastate the densely populated areas surrounding river basins.¹⁰²

Where does this leave us in our understanding of the Mediterranean horse? Given the predominance of mountainous landscapes and the fact that grasslands and steppe lands only make

up a small proportion of the Mediterranean landscape, it is clear that the Mediterranean horse adapted to become a hardy, versatile animal capable of tolerating an unpredictable climate and the long, hot arid months.

Lifestyle and Husbandry

Unlike the Central Asian horse, Mediterranean equines were regularly housed in stables and fenced, secure fields or paddocks. Ancient texts provide some description of the ideal stable – although they do not go into great detail. Rarely do these texts describe how a stable should be built, where or on what dimensions. For this we turn to archaeological remains. Numerous stable-type buildings have been excavated across Europe, the Middle East and North Africa. Many of the structures seem to have served a military function, but we also have examples of small stables included in the architectural layout of urban houses. Finally, we can use artistic remains. Mosaics from North Africa display what appear to be stud farms and give an idea of what the stables and stalls may have looked like.¹⁰³

The majority of ancient sources recognize the unnaturalness of keeping a horse in a stable; they all encourage the owner or breeder of horses to keep his animals outside as much as possible. In the case of young stock, this is to encourage physical development – particularly for the potential war or racehorse. As Anderson points out, common practice in the Greek world was to allow broodmares to live in a field.¹⁰⁴ They were brought in only when they were close to their due dates, and turned out again with their foal once he was robust enough to be exposed to the outside world. For Xenophon, it was only the warhorse that required stabling on a regular basis. This was because he needed to be placed in a regular training and fitness programme. This seems to have been the case in Sparta, a region that became renowned for its horse-breeding programmes.¹⁰⁵ As Howe points out, each Spartan was required to provide horses for the Spartan cavalry.¹⁰⁶ Presumably each Spartan citizen maintained a breeding programme at this country estate. From here, potential warhorses might have been sent to a central location for training at an appropriate age. This again calls to mind the programme followed at the Spanish School where male young-stock are left to run free over the foothills of the Alps at Piber until



FIGURE 4.11 The stables of Poseidon. Black-figure kylix attributed to the Amasis Painter, c.540 BCE.

they are four years of age. Only then are they brought into the stables to begin training. The broodmares are stabled only when they are due to give birth and for a short while afterwards, before being released into the hills with their foals.

Of course, not all parts of the Mediterranean world were suitable for keeping a horse at pasture; in urban settings there was no option other than using stables. In some cases the stables may have been located outside the city walls, but several examples from Pompeii indicate that stables could be built into the structure of the city house, as can be seen in the plan of the House of the Chaste Lovers and several other houses. The stables located at the House of Popidius Secundus were built like a micro-shedrow around a small courtyard, which included both stalls and rooms for the grooms. The literary sources emphasize the importance of maintaining a clean, dry stall.¹⁰⁷ The use of deep bedding does not seem to have been a concern for the regular horse; only with sick or injured horses who were presumably on stall rest and pregnant mares. In these instances the material of choice was straw or chaff. Cleanliness in the stable was considered of great importance. Xenophon recommends that the groom ‘have orders to remove the dung and litter daily to one and the same place’,¹⁰⁸ while Columella recommends that ‘horses are stabled in a dry place, so that their hooves are not wetted. This we shall easily avoid if the stable is floored with boards of hard wood, or if the ground is carefully clean from time to time and chaff thrown over it.’¹⁰⁹

Plans of non-military stables suggest that the buildings were designed to catch as much natural sunlight as possible. Our ancient authors place a certain amount of emphasis on the importance of keeping a stable snug and warm in order that the occupants obtain as much natural warmth as possible. Varro advises that the expectant broodmares,

after conceiving, are not worked over hard or kept in cold places, as chill is extremely injurious to those with foal. So in their stalls the ground should be kept free of dampness, the doors and windows should be kept shut, and poles should be placed in the pen to separate each mare, so that they cannot fight one another.¹¹⁰

Today we understand that a horse does not feel the cold the same way humans do and thus do not require as much heat as we do to stay warm. Indeed, the snug, sealed stable is not the most healthy environment in which to house a horse as it encourages bacteria to grow and can cause serious respiratory issues. In less salubrious climates stables were heated by means of a brazier. Needless to say, this was not a safe practice given the amount of highly flammable materials found in a stable.¹¹¹ Most of our knowledge about the construction of Roman stables comes from military barracks. The logistics of equine management on a military frontier are quite different from those at a permanent stud farm in a location under the canopy of the Pax Romana. Archaeological evidence from barracks along Hadrian's Wall indicate that two types of stabling were used: larger loose boxes, and the equivalent of the standing stall. The buildings were long, rectangular shedrow-type structures, not unlike those found at many racetracks today. The horses were tied to a wall above a manger, presumably with enough room to lie down if necessary, but this may not have been the case if several horses were tied between a set of partitions – the risk of the animals getting tangled in ropes would be too great. To ensure that each horse received an appropriate amount of food, it has been suggested that the manger was divided into sections. Presumably, then, each section of tie-stalls had one long manger attached to the wall. This manger was then divided into a section for each horse, thereby preventing less dominant animals from being chased off

their feed by an aggressive neighbour. Several stable structures in these barracks also had what appear to be loose boxes. These likely housed the mounts belonging to high-ranking members of the unit. These horses garnered the roomier stalls because of the status attached to their rider, as well as their own value, which would have been greater than the average cavalry trooper's mount.

Appearance

Head: Flat to slightly dished profile. The head is long and slender, but balanced in proportion to the rest of the body. It presents a very 'dry' profile: the shape of the bones and veins is clearly visible and frequently delineated in artistic representations. This gives the head of the Mediterranean type a distinctive chiselled appearance. The forehead is broad with large, well-spaced eyes. The ears are small, delicate and well-shaped, rarely shown as hairy. These horses typically have a clean throatlatch, with plenty of room between the jaw and vertebrae. The nostrils are large and thin-skinned. The overall impression is of a head that is clean, light and refined. In both relief and sculpture in the round, we are often given the impression that the horse is champing at the bit. This can be a sign of excitement and tension, but this also happens when the horse accepts the bridle and flexes through his jaw and poll.

The neck: The neck is moderate to long in length and well muscled. The Mediterranean typically displays a 'cresty' neck, often an indicator of a stallion, which builds up more muscle on the crest of the neck than mares or geldings. The longer neck is more frequently found in racing scenes and is typically less muscled, while the military and riding horse tends to the moderate, muscled neck. The long neck is suitable for the racehorse since it helps him to stretch out and lengthen his stride through his whole body. The medium-length neck is ideal for the Mediterranean military horse and is indicative of a high degree of suppleness and balance, essential for the cavalry manoeuvres used in the Mediterranean cavalries.

Shoulders and chest: This type typically displays a nicely sloping shoulder, which encourages the animal to open and lengthen his stride, creating a loose, smooth, free-flowing gait. The chest is moderate to narrow in breadth but always well-muscled.



FIGURE 4.12 Depiction of a four-horse chariot. Attic black-figure amphora by the Bologna Painter, c.510 BCE.

Body/Trunk: Typically close-coupled, though longer backs do appear. The girth is deep in proportion to the rest of the trunk. The stomach often looks ‘tucked-up’ – a trait commonly found in racehorses. The body is very lean; faint traces of the ribs can usually be seen. The ribs are moderately well sprung, but not overly so especially when compared to the steppe type. This suggests an animal with a degree of endurance, although lacking in speed and staying power when compared with other types. This is a fact found in the primary sources, and is possibly reflected in circus inscriptions listing the place of origin for racehorses, Africa (Near Eastern Type 2) being quite common. The body is relatively spare. As with the head, veins, musculature and bones are visible. This suggests a thin-skinned animal. The back is usually conformationally correct. It is well muscled as a result of the animal’s consistently working in a collected frame, thereby encouraging the development of a ‘double-back’, which is the muscling up of *m.longissimus* alongside the spine.

Hindquarters: The hindquarters are moderate in size, certainly not excessively large in proportion to the body. They are well shaped with a smooth, rounded appearance. The muscles are well developed and emphasized. In the depictions of the moving horse, the hindquarters are usually tucked under the animal, indicating that he has shifted his weight back and underneath him, thereby lightening the amount of weight on his forequarters.

Legs: The legs are clean and slender, displaying no excess hair or fleshiness. They have short, well-formed cannons with good, dense bone. The hocks and knees are large and clean. The pasterns can be long and sloping, but they are rarely short and upright. The length of the legs is long in proportion to overall height. The hooves are moderately sized in comparison to overall body mass.

The overall impression of the Mediterranean type is that of a slender, compact and muscular horse. This animal is frequently portrayed in a state of collection; indicative of the training and schooling methods used for these horses. These methods are possible with the Mediterranean horse because it is a conformational type that allows for this kind of work. The iconographic



FIGURE 4.13 A Patras Mountain Horse living on Crete.

and literary records suggest this is a sensitive, potentially high-strung horse that can be difficult at times. Obedience is emphasized to a degree, but we are rarely given the image of an entirely subservient animal. The Mediterranean type is a very athletic horse. It is capable of a quick turn of speed and sudden changes of direction as well as lateral movement and some of the 'high school' elements found in classical dressage. The levade – a deep, controlled rear – is frequently seen, particularly in the Greek iconographic tradition. The well-shaped legs and hooves suggest a horse likely to remain sound through regular, steady work; although terrain could be an issue. The general topography of the Mediterranean region suggests a type that is sure-footed and nimble enough to navigate steep and narrow mountain trails. Environmental requirements are also reflected in the 'dry' appearance of this type: there is little excess fat or hair, and muscle tends to be well-defined but lean.

CHAPTER 5

THE MILITARY HORSE

Of all the jobs horses have performed for humans over the past several thousand years, combat – whether chariotry or cavalry – is without a doubt the most unexpected. Indeed, prior to the advent of mechanized warfare, the horse was an essential component of battle. The battlefield, however, was a most unlikely place to put a horse. When you stop and think about how important the horse was to pre-modern warfare, and then juxtapose that with instinctual equine behaviour, it becomes apparent just how extraordinary the very idea of a warhorse was. At his most basic level the horse is a prey animal. Moreover, given the option of fight or flight, the horse will almost always choose the latter – unless he has absolutely no other option; after all, this is why *Equus* evolved to have long, lightweight legs – so he could outrun any predators on the open plains. The majority of horses, even stallions, will only engage in physical combat as a last resort. The reason for this is simple: in combat even the victor risks injury. For a prey animal any injury could become tantamount to a death sentence. Moreover, as a prey animal the horse is intensely attuned to his surroundings through his sense of sight, smell and hearing. He also pays close attention to the body language of fellow herd members – at the slightest hint of danger the whole herd snaps to attention – if one animal spooks or bolts, the rest will automatically react and follow. So then, the cavalry horse was an animal who was instinctually very aware of his surroundings, and prepared to run at the first sight of danger. This reaction was exacerbated when the horse was brought to an unfamiliar place.

The battlefield presented what could have been an overwhelming array of dangers for the horse, yet somehow we managed to override the basic nature of equines and persuaded the cavalry horse to run towards danger, rather than away from it. This was done largely through training. The cavalry horse was not created overnight and would have endured a rigorous raining and desensitizing programme, much like modern police horses. Xenophon's *Art of Horsemanship* provides our most detailed description of this process, but glimpses of the training process can be found elsewhere. Virgil (poetically) describes the importance of desensitizing the future cavalry mount to the trappings of war:

But if your bent is more towards war and proud squadrons, or to glide on wheels by Pisa's Alphean waters, and in Jupiter's grove to drive the flying car, then the steed's first task is to view the arms of gallant warriors, to bear the trumpet call, to endure the groaning of the dragged wheel and to hear the jingle of bits in the stall; then more and more to delight in his trainer's caressing praise, and to love the sound of patting his neck.¹

The warhorse required obedience, bravery and endurance – the absence of any one of these qualities would be a major liability on the battlefield.

Obedience was obtained through patience and training, never force. The logic behind this is obvious – when in the heat of battle, a horse and rider needed to trust each other implicitly. The horse who feared his rider would not perform as well as one who respected him, as the fearful horse would expect blows or pain. This fearful reaction could translate into cowardliness and submissiveness, or be directed into anger and aggression – either situation was perilous in combat. Literary and archaeological sources suggest that both Greek and Roman cavalry mounts were trained and schooled in controlled environments, such as a parade ground or the Roman *gyrus*. Xenophon tells us that at Ephesus one might see 'the racecourse thronged with cavalrymen riding'.² In his *Cavalry Commander*, Xenophon mentions Athenian reviews 'in the Academy, in the Lyceum, at Phalerum and in the Hippodrome'.³ In the *Art of Horsemanship*, he distinguishes



FIGURE 5.1 Detail of a fallen horse and rider from the Ludovisi Sarcophagus, c.260 CE.

between the uneven or oblong ring and the circular one.⁴ Virgil tells us that the prospective war or racehorse should 'begin to run round the circuit, to make his steps ring evenly, to bend his legs in alternating curves'.⁵ A tombstone from Caesarea in Mauretania inscribed for Q. Gavius Frontinus of the *singulares* horse guard shows what Speidel correctly identifies as a figure-of-eight riding track.⁶ Spaces identified as equestrian training grounds have been found in connection with numerous Roman military forts. One would expect any fort housing a permanent cavalry detachment to provide a suitable space for the conditioning and training of horses. At the basic level this could be a simple *gyrus*, but where space and resources were available training grounds must have been quite elaborate acting as a true riding school.⁷ These training grounds were selected carefully; they were not *ad hoc* open spaces. Arrian tells us that cavalrymen

not only choose a smooth place where their exercises are completed, but they work so much as to dig the middle to a proportionate depth and they break up the clods to fineness

and softness. From the whole plain they then cut the [space] in front of the rostra into the shape of an equilateral rectangle.⁸

As the Roman world expanded to include less salubrious climates, indoor or covered 'arenas' were constructed to provide suitable training areas in winter or inclement weather:

[I]n winter-time they built riding schools for the cavalry and a kind of drill-hall for the infantry, roofed with tiles or shingles or, failing these, thatched with reeds, sedge or straw. In them the army was trained in arms under cover, when the weather was disturbed by wind and rain. But for the rest of the time, even in winter, so soon as snow and rain ceased, they were made to train in the exercise-field, so that no interruption to routine might weaken soldiers' minds and bodies.⁹

Archaeological evidence for these indoor spaces has been found throughout the northern reaches of the Roman Empire, particularly in Britain at Inchtuthil, Chester, Haltonchesters, Netherby, Ilkley and Newstead, and in Germany.¹⁰ Speidel suggests some schools must have included varied terrain and a variety of obstacles such as ditches and walls for training horse and rider to jump.¹¹ The training grounds, then, were not uniform in size or shape but followed whatever form the topography allowed.¹²

The results of this intensive training were displayed before the public in spectacular mounted performances. Xenophon reports that one duty of the cavalry commander is to 'conduct all the other obligatory displays before the people with as much splendor as possible'.¹³ Xenophon goes on to describe what he considers to be the best manoeuvres for the public displays, including a 'gala ride in the agora'.¹⁴ He suggests 'the cavalcade gallop at top speed by regiments as far as the Eleusinium' and later 'ride back to the temples by the same route, but at a slow pace'.¹⁵ The reason he gives for such a display is to show off the beauty of the horsemen and their mounts, but it also tests skills required in combat. To begin with, the horses must be trained to behave in a crowd as they start off in the Agora saluting the various temples. The Agora would be packed with people wishing to view the spectacle.

The regiments then explode forward into a fast gallop, one group at a time. Such a manoeuvre would achieve its full effect only if the members of each regiment struck off simultaneously – anyone lagging behind would be awkwardly obvious. At the same time, those regiments waiting to run had to keep control of horses that would become increasingly more agitated the longer they had to wait. One must imagine that Xenophon wanted the regiments to gallop in an ordered formation. This means the cavalymen had to keep control of their mounts while moving at ‘top speed’, not a simple thing to do given the competitive nature of some horses as well as their basic flight instincts. If the animals took control and began to race each other, the spectacle would soon become chaotic and present a less formidable appearance. Finally, the men must pull their horses up before riding them back at a calm, stately walk. This is not an easy thing to do. The horses would be fired up after an explosive gallop and thus be inclined to fight their riders and prance out of formation on their way back to the temples. The skill and control Xenophon’s cavalymen required to perform a seemingly straightforward display were necessary on a battlefield where a squadron might be required to perform sudden starts and stops at speed. An out-of-control horse in the Agora was embarrassing for his rider and commander, but on the battlefield it could be deadly. For performances in the Lyceum, Xenophon suggests the commanders split the men into ‘two divisions in line of battle’ with the line ‘so extended that the whole breadth of the course will be covered’.¹⁶ He then advises the commanders to display ‘your men’s ability to gallop downhill in fairly large companies’.¹⁷ In both of his cavalry-related treatises Xenophon places a fair degree of importance on the ability to canter or gallop downhill.¹⁸ Riding a horse downhill in balance is more difficult than up even a steep slope. As the horse naturally carries 60–65 per cent of his weight on his forehand, so this uneven shift is exaggerated when the animal moves downhill and the need to shift the animal’s weight back with his hindquarters brought well underneath him is even more important. Riding an unbalanced horse downhill is an unnerving experience even at a slow pace; at speed one feels out of control. As the competitors in the mounted hill race at Trapezus discovered ‘on the way down, most of the horses lurched around, and on the

way back up they could hardly walk on the steepest stretches'.¹⁹ Xenophon rightly places much emphasis on training horse and rider to ride comfortably downhill since flat ground was not always available on the battlefield.²⁰ The topography of Mediterranean countries is hilly and mountainous, thus it was not unusual for combat to take place on a hill.²¹

The cavalry were also expected to provide demonstrations of their fighting prowess and skill at arms. Xenophon mentions javelin contests that took place in the Lyceum.²² This may have been similar to the mounted javelin competition at the Panathenaic games, or else have followed a pattern along the lines of the javelin exercises in the *hippika gymnasia* discussed below. The mounted display in the Athenian Hippodrome included a sham fight during which

the regiments pursue and fly from one another at the gallop in two squadrons of five regiments, each side led by its commander, the regiments should ride through one another. How formidable they will look when they charge front to front; how imposing when, after sweeping across the Hippodrome, they stand facing one another again; how splendid, when the trumpet sounds and they charge once more at a quicker pace! After the halt, the trumpet should sound once more, and they should charge yet a third time at top speed; and when they have crossed, they should all range themselves in battle line preparatory to being dismissed.²³

The sham battle described by Xenophon sounds like a staged affair, not an *ad hoc* melee as in medieval tournaments. Nonetheless, it displayed the skill and control required to manoeuvre a horse on the battlefield. Moreover, it introduced the horses to the sounds of battle in a controlled and safe environment.

The *hippika gymnasia* was a performance put on by elite members of the Roman cavalry for visiting dignitaries or the emperor. Arrian describes the *hippika* as

the customary exercises of the Romans' horsemen from old. The king decided [that] they also train [in] barbarian ones,

such as the Parthians' and Armenians' mounted archers practice and such wheelings around and wheelings back as charging light-spear bearers of the Sauromatian and Keltic riders [do] in part.²⁴

In his *Ars Tactica*, Arrian details the order and movements of the *hippika* programme.²⁵ The display begins with a charge from concealment. The riders burst suddenly into the arena:

Their charge, practised [to be] the most suitable for beauty and most brilliant possible, is onto the indicated plain where they might seem to charge from a [place] unseen and to make not a simple, but a multicoloured sally as [in] one [rush]. Separated by banners not only Roman, but even Scythian ones, they charge so that the attack becomes more colourful and frightening.²⁶

This is not a simple, straightforward action. As with the group charges described by Xenophon in his *Cavalry Commander* the horses must gallop as a cohesive unit, maintaining a uniform, steady pace. If any one horseman were to bolt forward or lag behind the flaw would be immediately apparent to the dignitaries watching from their elevated seat on the rostra. After all, 'banner confounded with banner or horse falling [afoul] of horse would perturb the whole formation and would destroy not only the beauty, but even the usefulness of the work'.²⁷ The charge from concealment tests the boldness of the horses as they must explode with flash and panache into a large open space most likely ringed with spectators. Immediately after the excitement of the charge, the riders must bring their horses under perfect control to perform the mounted *testudo* in which

Two horsemen, holding apart from this line so as to provide sallying [spaces] to friendly riders, have been set in front of the tortoise's right horn [= wing] to receive the javelin throws of those charging straight ahead. Thus protected, half of the horsemen stand at forward rest. When one signals [by] trumpet, half attack again, releasing as many javelins as continuously as possible.²⁸

The charge into the arena would fire up the horses (and riders) by 'getting their blood up'. The *testudo* exercises, on the other hand, required a calm and steady control. The horses could not paw the ground or fidget, but must stand rock-still in formation until it is their turn to run the pattern. When running the course, their gait had to be controlled and even, not a mad gallop, if the rider hoped to have any degree of accuracy with his javelins. This was followed by several javelin exercises with the horsemen divided into two teams. These teams galloped back and forth across the arena throwing javelins at each other as well as at two stationary target horsemen. From this the two groups moved into the Cantabrian gallop, a drill involving the formation of two large circles, with one team riding clockwise and the other counter-clockwise. As riders rode against each other on opposing circles they attempted to strike each other's shields with javelins. The horsemen next begin a series of individual and group drills of javelin throwing and other riding skills. The show concludes with riders mounting their galloping horses while wearing armour. The formal *hippika* was an important display of cavalry skills and it required highly trained riders and horses. The teams performing the *hippika* would have been the best of their squadrons, but these exercises would have been practised by all the cavalry troopers in the Roman army.²⁹

The skill required to execute the *hippika* manoeuvres with any degree of proficiency could not be learned in a short period of time particularly in an urban culture like that of the Romans. Unlike the horse cultures of the steppe and Near East, the Romans did not spend the majority of their day on horseback. Instead it was part of regular training and training in horseback riding was something begun at a young age. In the *Aeneid*, Virgil describes an event similar to the *hippika gymnasia* performed by adolescent boys at the funeral games for Anchises:

The column spilt apart
As files in the three squadrons all in line
Turned away, cantering left and right; recalled,
They wheeled and dipped their lances for a charge.
They entered then on parades and counter-parades,
The two detachments, matched in the arena,
Winding in and out of one another,

And whipped into sham cavalry skirmishes
 By baring backs in flight, then whirling round
 With leveled points, then patching up a truce
 And riding side by side.³⁰

The 'Troy games' of the late Republic and early Imperial periods must have re-created a similar display.³¹ Nero is reported to have participated in the Troy games as a young boy.³² The Troy games were primarily a spectacle of celebration, but they were occasionally used in a funerary context. At the funeral for Caligula's sister Drusilla 'The Praetorians with their commander and the equestrian order by itself [ran about the pyre] and the boys of noble birth performed the equestrian exercise called "Troy" about her tomb.'³³ This junior version of the *hippika gymnasia* required a fair degree of skill and was not risk-free. Even modified or performed in a 'watered-down' version, there was always a risk of injury for the participants. According to Suetonius, during a performance of the Troy games 'Caius Nonius Asprenas . . . was lamed by a fall in this diversion'. He goes on to state that 'he [Augustus] gave up the representation of such pastimes because Asinus Pollio, the orator, made a grievous and invidious complaint in the senate house, of the fall that Aeserninus, his grandson, sustained, by which he had broken his leg'.³⁴

The intensive training methods used by the Greeks and Romans were excellent for creating a finely tuned and obedient horse.³⁵ Battles, however, were not fought on the parade ground or in a fenced arena. Thus, the cavalry mount, while being a highly trained, supple and balanced animal thanks to his *ménage* schooling also had to be taught how to remain obedient and balanced outside of a controlled environment. Xenophon rightly points out that the warhorse

will frequently have to gallop down hill and up hill and along a slope, and as he will have to leap over, and to leap out, and to jump down at various times, the rider must teach and practice both himself and his horse in all these things. For thus they will be able to help each other, and will be thought altogether more efficient.³⁶

One of Xenophon's recommendations is to

call the men together, and recommend them to practice turning off the roads and galloping over all sorts of ground when they are riding to quarters or any other place.³⁷

Onasander echoes Xenophon's sentiments when he instructs the cavalry commander to

exercise the cavalry; he should arrange practice battles including pursuits, hand-to-hand struggles, and skirmishes; these maneuvers should be held on the plains and around the base of the hills as far as possible in broken country, as it is impossible to gallop at full speed either uphill or downhill.³⁸

Likewise, Vegetius explains the practice of the *ambulation*:

Similarly, the cavalry were also divided into troops, armed in the same way, and traveled the same distance, although in the equestrian exercise from time to time they pursued, and from time to time retreated, and made ready to charge back again. It was not only in the plains but also in hilly and difficult terrain that both arms of the service were compelled to ascend and descend, so that they might never experience any chance incident while fighting that they had not as trained soldiers learnt by continual practice.³⁹

The most efficient means of introducing a horse and rider to the rigours of cross-country riding was through hunting. Hunting on horseback was long considered an essential training tool in the preparation of horse and rider for the battlefield.⁴⁰ There are the obvious analogies between hunting and warfare. The accoutrements and iconography of the hunt suggest a psychological parallel between the chase and battle. As Barringer states: 'Taken as a whole, the weapons, poses, and accompanying images heroize hunting and hunters and demonstrate that, for the Greeks, hunting is battle.'⁴¹ It enabled rider and mount to use the skills honed by hours of practice in the riding arena in an unfamiliar and unpredictable environment. Balance, bravery, obedience and response times were tested

constantly. The hunt was not viewed as a sterile or safe alternative to battle; combat between animal and human could be just as deadly as that between two soldiers.⁴² Quarry like the wild boar were dangerous opponents. Xenophon states:

[Hunting] makes them [young men] modest and straight, because they are educated in things that are real; and they understood that they were successful in many respects because of these young men, and particularly in relation to war.⁴³

Moreover, hunting provided training in the skills required to allow an army of mixed arms to work together. The hunt included not only horsemen, but rather a diverse group including 'one or more horsemen accompanied by an army of huntsmen on foot, beaters, hounds and so forth'.⁴⁴ This statement corresponds with the hunting manuals. Each type of quarry required a specific arrangement of huntsmen, horses, hounds, weapons and attendants for the chase.⁴⁵ With regards to hunting boar Xenophon instructs the hunter to

get Indian, Cretan, Locrian, Laconian hounds, and purse nets, javelins, boar-spears and traps. The hounds of each type must be exceptional, to be willing to engage with the beast. The purse nets should be of the same linen threads as those for hares, of 45 threads, in three strands, each strand of fifteen threads ... The javelins should be of all sorts, with broad and razor-sharp blades, and strong shafts. The boar-spears should first of all have blades fifteen inches long, strongly made, with metal tines in the middle of the socket; their shafts should be of cornel wood, thick as military spears ... There should be fellow huntsmen. For this animal is difficult to catch, and requires a team.

Also, Arrian:

As for those who do not have men to look for the hares, some of them assemble a crowd of fellow-hunters and go out on horseback, and proceeding to the places where they think there may be a hare, wherever one is roused, they let their hounds go. But those who are rather 'do it yourself' hunters

go out on foot; one man goes with them on horseback, and this man's job is to chase with the hounds.⁴⁶

Mosaics from around the Mediterranean world provide detailed images of Roman hunting and the risks associated with the practice, even if the purpose of the chase was to capture animals alive for the arena.⁴⁷ One of the most detailed examples of this genre of mosaic is the 'Great Hunt' pavement from Piazza Armerina in Sicily dating to the fourth century CE. This mosaic depicts the capture of animals for the wild beast fights in the arena. Although the purpose is different from the traditional hunt, it nonetheless displays in great detail the various methods used to capture – or in the case of the traditional hunt kill – different animals. Both artistic and literary evidence suggest that mounted hunting was a regular pastime among the horse-owning classes of the Mediterranean world. Hadrian reportedly eulogized his favourite hunting horse with both burial and an epigram:

Borysthenes the Alan
Was mighty Caesar's steed:
O'er marshland and o'er level,
O'er Tuscan hills, with speed
He used to fly, and never
Could any rushing boar
Amid Pannonian boar-hunt
Make bold his flank to gore
With sharp tusk whitely gleaming:
The foam from off his lips,
As oft may chance, would sprinkle
His tail e'en to the tips.
But he in youthful vigour,
His limbs unsapped by toil,
On his own day extinguished,
Here lies beneath the soil.⁴⁸

Xenophon, Arrian, Oppian, Nemesian and Grattius wrote *Cynegeticae* – manuals on hunting. Aside from that of Xenophon, they all include descriptions of the ideal hunting horse and where he could be found.⁴⁹

Not every horse was suited to combat. Temperament and personality played a significant role in determining not only whether an equine had the potential to be a warhorse, but also his placement within a unit or formation. Gender also influenced suitability. The previously mentioned adage 'you talk to a stallion, tell and gelding and discuss with a mare' is very accurate. Intact horses – stallions and mares – tend to be considerably more opinionated than geldings. This is due in part to hormonal fluctuations, particularly during spring and summer, but also because of instinctual herd behaviour. In a herd the stallion has the job of keeping his mares and offspring together, protecting them from danger, while also defending his position and harem from any challengers. The stallion, then, is a naturally dominant and observant animal. As a result of this, they do have a reputation for being aggressive and unpredictable around other horses. Stallions certainly do require a certain type of handling and husbandry: the stallion is physically more robust and developed than geldings or mares, making him considerably stronger. Nor does he respond well to harsh handling – remember his position within a herd is to protect the harem and fight off rivals. Thus, if a stallion feels threatened he will lash out. Likewise, if he senses fear or weakness, he will take advantage of the situation by exerting his dominance. This does not mean that stallions are unmanageable, but they do require educated handling and training by a calm, competent individual.⁵⁰

If stallions have a reputation for aggression, mares are 'notorious' for being sensitive and temperamental. As with stallions, this is not an entirely unfounded label. The mares' job within a herd was to maintain hierarchy and order, while the alpha mare leads the herd whenever the group is on the move. Mares also come into heat/oestrus approximately every 21 days during the breeding season. This affects each mare differently: some show no behavioural changes whatsoever while others can become fire-breathing dragons!⁵¹

CENTRAL ASIAN WARFARE

The very art of the nomadic lifestyle enabled the warriors of the steppe to become virtually impossible to come to grips with.

The mobility required for successful nomadic pastoralism made it easy for the horsemen of the steppe to disappear into the vastness of the grasslands when faced with a military invasion, a fact explained most succinctly by Herodotus:

The Pontic region to which Darius was leading his army is, except for the Scythians, inhabited by the most ignorant peoples of all. For we cannot cite the wisdom of any nation there, other than the Scythian people, nor do we know of any man noted for wisdom in the Pontic region other than Anacharsis. The Scythians were more clever than any other people in making the most important discovery we know of concerning human affairs, though I do not admire them in other respects. They have discovered how to prevent any attacker from escaping them and how to make it impossible for anyone to overtake them against their will. For instead of establishing towns or walls, they are all mounted archers who carry their homes along with them and derive their sustenance not from cultivated fields but from their herds. Since they make their homes on carts how could they not be invincible or impossible even to engage in battle?

They were helped in making this discovery by their land and their rivers, which foster and support this way of life. For their land is flat, grassy and well watered, and the rivers running through it are not much fewer in number than the canals of Egypt.⁵²

These elusive warriors rarely engaged in pitched battle or close-quarter combat. When Darius I invaded Scythia, the nomads reportedly 'decided ... not to directly resist by giving battle, but instead to withdraw, and as they retreated, to destroy whatever wells and springs they passed and obliterate the grass from the earth'.⁵³ When an exasperated Darius sent a messenger to Idanthyrsos, the Scythian king, belittling him for avoiding battle, the king replied:

This is my situation, Persian. I have never yet fled from anyone out of fear before, and I am not fleeing from you now. What I have been doing is in fact no different from what I am

accustomed to do in times of peace. I will tell you why I do not engage you now: it is because we have neither towns nor cultivated land to worry about being captured or razed, which might induce us to engage you in battle sooner.⁵⁴

On those rare occasions the nomads did choose to engage in battle, they still remained difficult to catch:

The Macedonians and Scythian fought a pitched battle, and the Macedonians were victorious. A hundred and fifty Scythian horsemen perished; the rest had no difficulty reaching safety by slipping into the desert, where it was impossible for the Macedonians to pursue them further.⁵⁵

To maintain the advantage of mobility the steppe horseman needed to sacrifice the protection offered by heavy armour, as any extra weight would slow him down. This lightweight armour necessitated the use of a primary weapon that would enable the soldier to fight from a distance, as well as tactics that would prevent the enemy from trying to close in. The weapon of choice was the re-curve composite bow, a small, lightweight and powerful weapon designed to be used efficiently and effectively from horseback (Fig. 5.2).

With regards to tactics, the favoured formation was to ride at a consistent speed in a circle around their opponents. This style of attack served several purposes: it allowed the archers to harass their opponents from all sides, forcing them into a tight, static formation; it disoriented and demoralized those under attack as they were constantly assailed by arrows but were unable to do anything about it while at the same time the attackers created a huge amount of dust, noise and confusion; finally, the archers were able to maintain a sizable distance between themselves and their opponents. If the beleaguered enemy did try to counter-attack the circling nomads, it was often to no avail:

Spitamenes, on receiving word that the men Alexander had sent to Marakanda were approaching, abandoned the siege of the citadel and retired to the inaccessible regions of Sogdiana. Pharnoukes and his fellow commanders, in their eagerness to



FIGURE 5.2 Burial figure of a mounted archer, 50 BCE–50 CE, Han Dynasty, China.

drive him out entirely, pursued him as he withdrew to the frontier of Sogdiana and, without taking account of what they were doing, entered the territory of the Nomad Scythians. Spitamenes, meanwhile, had enlisted nearly six hundred Scythian horsemen and was encouraged by his alliance with the Scythians to stand and fight the approaching Macedonians. But when he had arrayed his men on level ground near the Scythian desert, he chose

neither to await the attack of the enemy forces nor to attack them himself, but ride in a circle around their infantry phalanx while firing arrows. When Pharnoukes' forces attacked them, Spitamenes easily escaped, since his horses were swifter and, for the moment, fresher, whereas Andromakhos' horses, in need of fodder after their long march, were in distress. Whether the Macedonians stood their ground or retreated, the Scythians assaulted them with zeal.⁵⁶

Crassus discovered the difficulty of trying to come to grips with mounted archers during his failed invasion of Parthia:

Crassus ordered his light-armed troops to make a charge, but they were unable to make much progress. They ran into a shower of arrows and soon gave in, hurrying back for shelter to the lines of the regular infantry among whom they began to cause some disorder and terror, since the men could now see how strong and fast these Parthian arrows were, which could pierce armor and go through every kind of defensive covering, hard or soft alike.

The Parthians now spread out and began to shoot their arrows from all sides at once. There was no attempt at accurate marksmanship, since the Romans were so densely crowded together that it was impossible to miss the target even if one wished to do so. They merely kept on shooting with their great strong bows, curved so as to give the maximum impetus to the arrows, and the blows fell powerfully and heavily upon the Romans. Thus the position of the Romans was, from the first, a very awkward one. If they stayed in their ranks they were wounded one after the other; if they attempted to come to close quarters with the enemy, they were still unable to do the enemy any harm and suffered just as much themselves. For the Parthians shot as they fled, being indeed more adept at this than anyone else except the Scythians; and it is certainly a very clever maneuver – to fight and to look after one's own safety at the same time, so that there is no dishonor in running away.⁵⁷

The horse archers of the steppe proved themselves to be very versatile. If they found themselves employed or conscripted within the larger forces of another army, they were still able to make use of the disorienting hit and run tactics and made them so successful. The battles of Platea and the Hydaspes both show how mounted archers could be sent out ahead of the main force to harass and frustrate their opponents darting to and fro while firing their bows from a safe distance, all the while being able to make a hasty retreat when necessary. At Plataea,

Mardonius, overjoyed and exalted by this phantom victory, sent out his cavalry against the Hellenes. The horsemen rode out and attacked, inflicting injuries on the entire Greek army with their javelins and arrows, for they were mounted archers and it was impossible for the Hellenes to close with them.⁵⁸

Alexander made use of his mounted archers more than once during the battle at the Hydapses, every time to good effect either to protect his advancing army, or to prevent the enemy from moving. At one point in the battle,

When he was within range of enemy fire, Alexander sent the mounted bowmen, who numbered nearly 1000, against the Indians' left wing, so as to confuse the Indians stationed there with a barrage of arrows and incursions of horses.⁵⁹

Again at Sangala, Alexander

instantly sent out the mounted bowmen against the defenders with orders to ride by and shoot at them from a distance, so that the Indians would not sally out before the Macedonians had formed up in position, but would suffer injuries within their stronghold even before the battle began.⁶⁰

For the steppe tactics of mobility to be even remotely feasible the nomads had to be able to outdistance any pursuit. This required a horse capable of great feats of endurance who could maintain a rapid and steady pace for hours on end if need be, a horse that

would continue to run long after others had broken down from exhaustion. Moreover, this horse had to be able to accomplish such a feat without needing to stop for food or water. Finally, he had to be sturdy and sure-footed enough to move at a fair rate of speed over all kinds of rocky, broken, boggy and uneven terrain. The main limit placed on a horse's endurance in a pursuit is his respiratory system, which controls how fast a galloping horse can breathe. There is no amount of training or conditioning that can alter this. When a horse's front legs strike the ground at the gallop the ribs are forced upward, squeezing air out of the lungs. At the same time, the horse lowers his neck and head, pressing the rib cage backwards. The front end of the body is losing momentum at this point in the gallop cycle, causing the internal organs attached to the diaphragm to slide forward, further pressing on the lungs. As the horse raises his head and neck, the load is removed from the forehead and the rib cage and sternum are pulled forward and down. The forehead accelerates again and the internal organs slide backwards, causing the lungs to expand and draw air in. In this way a horse's respiratory rate is connected to his stride frequency: he takes one breath per stride, inhaling during the suspension phase, exhaling in the stance phase. At their highest speed, horses lengthen their strides to cover more ground, but the number of breaths per stride does not change, even though the horse is expending more energy. In actuality, the breathing cycle becomes less efficient as the stance phase is prolonged. Tired horses will alter the motion of their gallop to try and force more air into their lungs, extending the suspension phase and making more apparent head movements.⁶¹ The harsh, unpredictable environment of the Eurasian Steppe produced exactly the type of horse capable of a long-distance pursuit. The steppe horse was perfectly adapted to perform both the unpredictable hit and run raids of marauding nomads and the persistent, circling tactics of the mounted archer in battle. His small size made it easier for his rider to control him with weight and balance – a necessity for the archer who had to drop his reins to shoot a bow, while his sure-footedness was an essential requirement for the mount of a horse archer as any sudden or unexpected changes in pace or direction affected the flight of the arrow as well as the balance and security of the rider.⁶² The steppe horse was not well suited to any sort of close combat

because of his small size and the likelihood that he was a gelding. When compared to other types of horse, particularly the Nesaeen, we can see that he lacked the bulk and sheer physical presence required to push a larger enemy mount around.

Central Asia is not an easy place to live. The extremes of climate and topography discourage sedentary life and urbanization in all but a few places. Apart from the oases like the Fergana valley, conditions were not capable of supporting any sort of intensive crop cultivation. Instead, Central Asia was the ideal environment for the nomad. The vast swathes of grassland allowed for regular migrations between winter pastures in the lowlands and summer pastures in the higher plateaus. The size of the grasslands permitted families to keep sizable herds with which to support themselves. The products obtained from the animals could be traded with the sedentary populations to the east and west in exchange for goods produced in urban or agricultural environments. The success of the nomadic lifestyle was closely tied to animals, and the horse in particular. The animals allowed mobility, and the horse provided a form of mobility unrivalled until the invention of the steam engine. Mobility and the horse became a central component of nomadic life. The only way in which the horse could continually benefit the nomad was for the nomad to take a 'hands off' approach with regards to horse husbandry. To meddle with the horse created by the natural environment was to risk the security and stability of nomadic life. As a result of this, Central Asia produced a horse that was far from aesthetically pleasing or particularly affectionate towards humans. It created an animal that fell somewhere between the wild Przewalski horse and the truly domesticated equines of the west. This horse was small, wiry and tough. His conformation and semi-wild attitude made him unsuitable for the training regimes of the Near East and Mediterranean; but his drive for survival was ideal for both the nomadic lifestyle and style of warfare.

NEAR EASTERN WARFARE

The presence of two distinct equine types in the Near East led, not surprisingly, to the development of more than one style of mounted combat. This is unique in the ancient world, and once

again reflects clearly the influence of conformation and overall type on the way in which a horse can be used. The Near East was a hotspot of equestrian innovation in antiquity. The cavalries of the ancient Near East seem to have been the most willing to experiment with new tactics and technologies and for this reason became a formidable cavalry power. The only comparison to the situation in the Near East is the Macedonian cavalry during the reign of Alexander the Great. This is not unexpected, though. As the Roman disaster at Carrhae shows, a strong, competent cavalry force with suitable horses was an essential element in any battle against a Near Eastern army. Alexander clearly recognized this and thus trained his horsemen to fight from horseback in an entirely new way.

On account of its central geographical location, the inhabitants of the Near East were uniquely situated to receive equestrian ideas from across the ancient world. The fortuitousness of this location is first evident with the introduction of the domestic horse to the Near East directly from the steppe of Central Asia some time in the late third/early second millennium. Unlike the inhabitants of Central Asia, the Near Easterners had a well-established tradition of riding and driving equids: asses and onagers, as well as oxen and other bovines. The concept of using the horse for similar jobs was nothing unexpected, and equines very quickly became woven into the fabric of Near Eastern society. As we saw above, the two Near Eastern types were physically very different from each other. This was, of course, a result of the diverse Near Eastern climate and geography. Each type was suited to a particular style of mounted combat – one light, the other heavy.

Near Eastern Type 1

The ancient sources refer to the Nesaeen as ‘huge’ or ‘massive’ – in this they refer not to height but to breadth of body. The Nesaeen was a stout, robust animal with a short, thick neck, broad chest, deep girth, strong legs with good, dense bone. His most distinctive characteristic was a heavy ram’s head (like a Roman nose), giving him a convex profile. Horses of similar physical type appear in the imperial art of the Assyrian Empire and the Sassanian Empire. The Nesaeen horse was more robust because of its diet – the Nesaeen

plains of Media produced alfalfa (Lucerne) – a highly nutritious clover/grass: the protein levels of other grasses/hays at best reach 7–10 per cent but alfalfa can reach 20 per cent.⁶³ This high protein content is what allowed the Nesaeian horse to grow so substantial, far more so than the plains-raised horses of the steppe, the mountain horses of the Mediterranean or the forest horses of Northern Europe.

The Nesaeian horse was a powerful animal, with considerably greater muscle mass than other horses of the period. Not designed for speed, their short-coupled bodies made them ideal for collected work and well suited for carrying cavalrymen in a controlled charge. They were ideal for bearing the equipment of a heavily armed cataphract. Their shape also made them relatively agile, not unlike the Iberian horses used in the bullring today. A significant disadvantage to this type is the diet that made them unique: to maintain their physical condition the Nesaeian horses required a diet rich in alfalfa, which meant that this would have to be transported when on campaign. Nesaeian horses raised away from the alfalfa fields would have been smaller and slimmer, lacking the essential protein needed to develop a robust body. Oppian describes the Nesaeian thus:

In beauty the most excellent of all horses is the Nesaeian,
which wealthy kings drive; beautiful to behold, gentle to ride
and obedient to the bit, small of head but shaggy maned,
glorying in the yellow-locks on either side of his neck.⁶⁴

What is interesting about Oppian's description is his reference to the Nesaeian's temperament: 'gentle to ride and obedient to the bit'. This is an important characteristic, especially with regard to use and trainability. This was not a high-strung, hot-blooded horse, but a calm, amenable animal. His broad back and naturally collected gaits made him comfortable, while a generally workmanlike, calm temperament made him easy to work with. His 'obedience' meant it was possible for a wide range of riders to manage him easily. This is more important than it may at first seem. Remember, the Nesaeian was the horse of the aristocracy: only elite members of society were permitted to ride them. These men were supposed to be consummate horsemen – riding skill

being a mark of the Persian nobleman. Just because they were supposed to excel at it does not necessarily mean they all did. Not every individual is a natural horseman, and sometimes all the practice in the world will never make someone highly skilled. If such a man were mounted on a high-strung, flighty horse he could very well lose control of his horse and lose face and respect at the same time. The level-headed, obedient Nesaeen horse was (typically) more forgiving of mistakes and could take care of an awkward or nervous rider.⁶⁵

The Nesaeen type seems to have been given special consideration and held in particular esteem by the kingdoms of the Near East. His robust size certainly made him unique amongst the equines of the ancient world. As we have already seen, official correspondence and other records from the Near East suggest that this type was less common than other types and thus the property of gods and royalty. There is no doubt that the Nesaeen type would have been more expensive to maintain because of his dietary requirements and overall mass. From a military perspective, although any cavalryman must have come from a moderate to wealthy economic background, those who rode or drove the Nesaeen horse into battle were members of the elite. This was the armoured cavalry of antiquity – the cataphract and his predecessors. The amount of metal required to build armour for both horse and rider was expensive and only the upper echelons of Near Eastern society could afford it.⁶⁶ The term ‘cataphract’ does not appear in literary sources until the Hellenistic period, although armoured cavalry and chariotries existed from at least the second millennium onwards. In the *Anabasis*, Xenophon describes Cyrus’ personal guard of cavalry as wearing

breastplates and cuirasses, and all of them except Cyrus, who rode into battle bare-headed, wore helmets as well. All the horses in Cyrus’ squadron were equipped with protective armour on their foreheads and chests, and their riders also carried Greek-style swords.⁶⁷

At the battle of Gaugamela, Arrian describes a close cavalry fight in which

Alexander ordered the Paeonians with Ariston and the mercenaries to charge the Scythians, and the barbarians wavered. The rest of the Bactrians, however, came up against the Paeonians and mercenaries, restored to the battle those on their own side who were then turning to flight, and made the cavalry engagement a close one. Alexander's men fell in greater number, under pressure from the number of the barbarians, and also because the Scythians, riders and horses alike, were better protected by defensive armour.⁶⁸

Appian lists the units of Antiochus' army thus:

His horse were stationed on either wing, consisting of the mail-clad Galatians and the Macedonian corps called the Agema, so named because they were picked horsemen. An equal number of these were stationed on either side of the phalanx. Besides these the right wing had certain light-armed troops, and other horsemen with silver shields, and 200 mounted archers. On the left were the Galatian bands of the Tectosagi, the Trocmi, the Tolistoboi, and certain Cappadocians furnished by King Ariarthes, and a mingling of other tribes. There was another body of horse, mail-clad but light-armed, called the Companion cavalry. In this way Antiochus drew up his forces. He seems to have placed most reliance on his cavalry, whom he stationed in large numbers on his front.⁶⁹

Lucullus came across fully armoured horsemen while campaigning in the east:

And his boldness was not altogether that of a mad man, nor without good reason, when he saw so many nations and kings in his following, with phalanxes of heavy infantry and myriads of horsemen. For he was in command of twenty thousand bowmen and slingers, and fifty-five thousand horsemen, of whom seventeen thousand were clad in mail, as Lucullus said in his letter to the Senate⁷⁰

Xenophon was a proponent of equine armour. In his *Art of Horsemanship* he recommends the horse be as well protected as his rider:

Since the rider is seriously imperiled in the event of his horse being wounded, the horse should also be armed, having head, chest, and thigh pieces: the last also serve to cover the rider's thighs. But above all the horse's belly must be protected; for this, which is the most vital part, is also the weakest. It is possible to make the cloth serve partly as a protection to it. The quilting of the cloth should be such as to give the rider a safer seat and not to gall the horse's back.⁷¹

The cavalry horse on an early fourth-century BCE Çan sarcophagus wears a chamfron that covers the entire front of his face – forehead to nose – and encircles his eyes.⁷² Livy describes the Seleucid army with 'a countless force of horsemen was crossing into Europe by the Hellespont, he said. Some of these were men wearing breastplates, the so-called *cataphracti*'.⁷³ In his account of Carrhae, Plutarch writes of how 'their enemies dropped the coverings of their armour, and were seen to be themselves blazing in helmets and breastplates, their Margianian steel glittering keen and bright, and their horses clad in plates of bronze and steel'.⁷⁴ Ammianus Marcellinus states:

there marched on either side twin lines of infantrymen with shields and crests gleaming with glittering rays, clad in shining mail; and scattered among them were the full-armoured cavalry (whom they call *clibinarii*), all masked, furnished with protecting breastplates and girt with iron belts, so that you might have supposed them statues polished by the hand of Praxiteles, not men. Thin circles of iron plates, fitted to the curves of their bodies, completely covered their limbs; so that whichever way they had to move their members, their garment fitted, so skillfully were the joinings made.⁷⁵

Julian notes:

Of these troops some carry lances and are protected by cuirasses and helmets of wrought iron mail. They wear

greaves that fit the legs closely, and knee-caps, and on their thighs the same sort of iron covering. They ride their horses exactly like statues, and need no shield.⁷⁶

The most detailed description of the cataphract's equipment comes from Heliodorus' *Aethiopian Story*:

The only troops he [Oroodates] stationed ahead of himself were the armored cavalry, and it was largely because of his reliance on these that he ventured to fight at all. Of all the Persian formations these are generally the most effective, ranged before the line like a wall, impervious to the tides of war.

The form of their armor is as follows. A man chosen for his exceptional physical strength dons a close-fitting helmet, beaten from a single piece of metal and cunningly crafted into a realistic representation of a human face, like a mask. This covers his head completely from crown to neck, apart from slits over the eyes so that he can see. His right hand is armed with a lance somewhat longer than a spear, leaving his left free to work the reins. A scimitar hangs at his side. His body armor covers not just his breast but the whole of the rest of his body as well. It is constructed in the following way. They take rods of bronze and iron and beat them into squares about a span in size; these are then fitted together so that they overlap at the edges, each plate riding over the one beneath and the one beside it so as to leave no gaps. This contexture is then fastened together with stitches underneath the overlaps, thus producing a garment of plate-mail that sits comfortably on the body, yet fits tightly all over, shaping itself onto every limb and contracting and expanding so as to allow unimpeded movement. The armor also has sleeves and extends from head to knee, the only opening being at the thighs, where it is necessary for the rider to bestride his horse. This, then, is their body armor, impervious to arrows and resistant to all injury. Their greaves reach from the soles of the feet to the knee, where they meet the body armor.

The horse too is protected by armor of a very similar kind; shin-plates are fastened round its legs, its head is totally sheathed in tight-fitting frontlets, and a skirt of iron mail is draped over its back, down to its belly on either side, thus affording the animal protection while at the same time being loose enough not to hamper its galloping. Equipped and virtually encased in armor of this kind, the rider bestrides his steed, though he is so heavy that he cannot mount it by himself but has to rely on others to lift him on. Then, in the hour of battle, he gives his horse its rein, digs in his spurs, and bears down at full tilt on the enemy, looking just like a man of steel or a hammer-worked statue come to life. The sharp end of the lance projects some way ahead horizontally and is supported by a clasp on the horse's neck, while the butt end is fastened into a loop on the animal's flank. Thus the lance is held firm against the force of impact and does not act against the rider's hand, which has only to direct the thrust as the rider braces himself and lunges forward to increase the force of the impact – which is so violent that the lance transfixes everyone in its path, often impaling two or more opponents at a single blow and carrying them along, skewered.⁷⁷

Plutarch's account of Carrhae provides an excellent description of how the cataphract functioned and his ideal use in battle. Their main offensive weapon was a long, solid spear – a pre-cursor to the medieval lance. Plutarch writes that the cataphracts at Carrhae initially 'proposed to charge upon the Romans with their long spears, and throw their front ranks into confusion'.⁷⁸ This tactic could work in several ways. The Parthians need not necessarily come into contact with the front ranks of the Romans to throw their ranks into confusion. The sight and sound of a unit of these heavily armed horsemen coming steadily towards the lines could cause men to waver and break. It is important to visualize what this must have looked like. It was not a dramatic, flat-out galloping charge. These horses were not built to gallop madly across a plain, especially when carrying the extra weight of armour. Instead, it must have been something like a steam train slowly picking up speed and impulsion, eventually rolling down on whatever stood in front of it. Even if the Roman infantrymen knew the horses

would try to avoid crashing into them, the less rational part of their minds would have seen the heavy mass or horsemen barrelling down on them with ever increasing speed (and mass). The armoured cataphract horse was not capable of making a sudden stop or turn at speed because of the weight he was carrying and this would be obvious to anyone standing in front of him. Thus, the infantry lines could break as men flinched away from anticipated impact. The chance of this happening with seasoned veterans, however, was slim. The Parthians could also destroy the front ranks by simply impaling men on their spears, but this was less likely to happen with the enemy formed up in solid ranks as the Roman infantry would have been. It is also difficult, but not impossible to make a horse charge into an ostensibly solid object as the overlapping shields of the infantry would have appeared to be. Indeed, the Parthian cataphracts at Carrhae recognized this, 'but when they saw the depth of their formation, where shield was locked with shield, and the firmness and composure of the men, they drew back, and while seeming to break their ranks and disperse, they surrounded the hollow square in which their enemy stood before he was aware of the maneuver'.⁷⁹ The conformational close-coupledness of the Nesaeen horse made them easier to collect and manoeuvre than other types. This must be what Plutarch refers to when he says the cataphracts seemed to 'break their ranks and disperse': the riders were skilfully manoeuvring their horses into position with quiet, organized efficiency by using the numerous lateral movements like half-passes and leg-yields now schooled in the sport of dressage. Conformation in conjunction with the calm temperament of the Nesaeen horse allowed the Parthians to accomplish this re-positioning with minimal fuss, even though the horses had been pulled up from a charge. Hotter-tempered horses could not manage this; they would become extremely agitated and disobedient.

Having positioned themselves, the Parthians next

stationed their mail-clad horsemen in front of the Romans, and then, with the rest of their cavalry in loose array rode round them, tearing up the surface of the ground, and raising from the depths great heaps of sand which fell in limitless showers of dust⁸⁰

Here we should not envisage the cataphracts galloping madly in circles around the Roman ranks. This would not only be unnecessary, but also a waste of energy. The Nesaeian is not an endurance horse and cannot sustain high speeds for any length of time. Given his mass, especially with the inclusion of armour, he need not go faster than a collected canter to cause havoc. The impact of thousands of heavily armoured hooves hitting the ground would have literally caused the earth to shake while at the same time kicking up a massive cloud of dust and grit. The combination of obscured vision and the deafening thunder of hooves mixed with the clanking of armour and the snorting of horses would have disoriented even the most stalwart of soldiers.

For offensive weapons the cataphract made use of a long spear and his horse, particularly if the horse was armoured. Plutarch describes how the 'mail-clad horsemen in front, plying their long spears, kept driving them together into a narrow space'.⁸¹ This was a slow and methodical process taking advantage of both conformation and temperament. Once again the riders could use the natural collection of the Nesaeian horses to herd their opponents into an ever more confined space, spinning and shifting in all directions to cut off any attempts at escape. This calls to mind the image of cowboys cutting and herding cattle. The men and their horses worked together mostly at a controlled pace with occasional explosions of movement to prevent a cow, or in this case a Roman, from getting past. Temperament is important as the horses could not become agitated or disorganized from the ruckus created by the panicked enemy or rattled when asked to perform a sudden movement and then come back under control. Finally, the overall mass of the Nesaeian horse was intimidating, especially to a routed enemy being pressed ever closer together by these large animals. The same tactics could work against enemy cavalry as well, particularly if they were mounted on smaller, more high-strung Mediterranean type horses. According to Plutarch, 'the Gauls were distressed above all things by the heat and their thirst, to both of which they were unused; and most of their horses had perished by being driven against the long spears'.⁸² Crassus' son, Publius, discovered just how powerful the cataphract could be when he attempted to rally and attack the Parthians:



FIGURE 5.3 Nesaeen-type horses engaged in single combat. Sassanid relief depicting King Bahram II (bottom register) and his son (top register) at Naqsh-I Rostam, Iran.

Publius himself, accordingly, cheered on his cavalry, made a vigorous charge with them, and closed with the enemy. But his struggle was an unequal one both offensively and defensively, for his thrusting was done with small and feeble spears against the breastplates of raw hide and steel, whereas the thrusts of the enemy were made with pike against the lightly equipped and unprotected bodies of the Gauls.⁸³

This passage shows how effective a trained, organized unit of cataphracts could be. The Gallic cavalry was defeated by the combination of equipment and horses.

To create a unit of cataphract cavalry was no easy matter despite what sources like the *Historia Augusta* might suggest when they write:

One hundred and twenty thousand of their cavalry we have routed, ten thousand of their horsemen clad in full mail,

whom they call *cataphractoi*, we have slain in battle, and with their armour we have armed our own men.⁸⁴

Appropriate horses, ideally those of the Nesaean type, had to be acquired. The armour had to be made. In order for it to protect the wearer to the greatest degree, it had to be custom fitted to each man.⁸⁵ Likewise, custom armour had to be made for the horses as well. Particular pieces like the chamfron had to be fitted to the individual horse, much like human armour. The horse had to be introduced to wearing armour. Even the most placid equine has to become used to wearing it and moving in it. The rider had to become accustomed to bearing the additional weight of cataphract armour – it fits and moves in a manner that is entirely different from mail. It is more balanced on the body, but much less flexible. Many observers compare the cataphract to a statue because of the stiffness his armour creates.⁸⁶ This necessitated learning a new way to ride as both balance and freedom of movement were affected by the equipment. Thus, the process of equipping and training a cataphract unit was a long one and no easy feat, as Julian points out in his *Orations*:

What emperor can one cite in the past who first planned and then reproduced so admirable a type of cavalry, and such accoutrements? First you trained yourself to wear them, and then you taught others how to use such weapons so that none could withstand them. This is a subject on which many have ventured to speak, but they have failed to do it justice, so much so that those who heard their descriptions, and later had the good fortune to see it for themselves, decided that their eyes must accept what their ears had refused to credit. Your cavalry was almost unlimited in numbers and they all sat their horses like statues, while their limbs were fitted with armour that followed closely the outline of the human form. It covers the arms from wrist to elbow and thence to the shoulder, while a coat of mail protects the shoulders, back and breast. The head and face are covered by a metal mask which makes its wearer look like a glittering statue, for not even the thighs and legs and the very ends of the feet lack this armour. It is attached to the cuirass by fine chain-armour like

a web, so that no part of the body is visible and uncovered, for this woven covering protects the hands as well, and is so flexible that the wearers can bend even their fingers.⁸⁷

Third-century CE reliefs at Firuzabad and Naqsh-e Rostam from the Sassanid period show what can be interpreted as an early form of jousting (Fig. 5.3). The Sassanid king charges his opponent in single combat, holding a long, heavy lance in both hands. These images 'anticipate some motives common in representations of medieval cavalry fights: there is even the broken lance of the vanquished cavalier'.⁸⁸

The heavily armed cataphract mounted on his robust steed clearly made an impression on the authors of antiquity, and no doubt the armies of the ancient world as well. For sheer strength and presence, the Nesaean type horse outclassed every other horse type of antiquity. The advantages of size came with a price, however. While the amount of armour on both horse and rider offered a greater degree of protection, it took away the advantages of speed and agility. At the battle of Issus, Curtius describes

The horses and horsemen alike of the Persians, weighed down by the linked plates which covered them as far as the knees, were hard put to it to heave their column along; for it was one which depended all on speed; for the Thessalians in wheeling their horses had far outstripped them.⁸⁹

Lucullus recognized the disadvantages attached to wearing full armour:

But when he saw that the mail-clad horsemen, on whom the greatest reliance was placed, were stationed at the foot of a considerable hill which was crowned by a broad and level space, and that the approach to this was a matter of only four stadia, and neither rough nor steep, he ordered his Thracian and Gallic horsemen to attack the enemy in the flank, and to parry their long spears with their own short swords. (Now the sole resource of the mail-clad horsemen is their long spear, and they have none other whatsoever, either in defending

themselves or attacking their enemies, owing to the weight and rigidity of their armour; in this they are, as it were, immured).⁹⁰

With these words, he led his men against the mail-clad horsemen, ordering them not to hurl their javelins yet, but taking each his own man, to smite the enemy's legs and thighs, which are the only parts of these mail-clad horsemen left exposed. However, there was no need of this mode of fighting, for the enemy did not await the Romans, but, with loud cries and in most disgraceful flight, they hurled themselves and their horses, with all their weight, upon the ranks of their own infantry.⁹¹

The extra weight carried by these animals – both in terms of their natural mass and the additional pounds created by the armour – affected the stamina of the cataphract. He was not capable of sustaining any semblance of speed over distances.⁹² At Issus, Arrian tells us that 'the Persians' horses were suffering in the retreat, carrying their heavily armed riders'.⁹³ Basic equine physiology dictates that larger mass equals decreased endurance at speed and durability when put in any type of intensive, strenuous work:

as the horse passes 1,300 pounds, it begins to suffer from certain disadvantages: It can become ponderous in movement; it is often too wide in the barrel to sit on comfortable; it loses endurance capability; and it becomes more prone to joint and hoof damage.⁹⁴

The truly massive draft horses of Northern Europe are designed to do repetitive work at a walk and jog and can do so for hours at a time, but any change from this or attempts to perform more 'athletic' jobs requires a skilled, knowledgeable rider and a host of other experts to maintain the animal's soundness over a working career.⁹⁵

Near Eastern Type 2

As we have just seen, the Neasaean type of horse provided an unique military advantage in the ancient Near East; however, he

was not perfect and came with a specific set of disadvantages. To make up for this, the Near Eastern cavalries were fortunate in having another type of 'native' horse at their disposal, what Azzaroli calls 'blood horses, capable of high performances'.⁹⁶ When marching through ancient Armenia, Xenophon describes their horses thus: 'The horses in that part of the world were smaller than the Persian breed, but much more lively.'⁹⁷ These horses are the type of equines that filled the ranks of the Near Eastern messenger systems. The speed with which these courier systems worked was noteworthy in antiquity. Herodotus tells us that Xerxes

sent a courier to Persia to report his present misfortune. There is nothing that travels faster, and yet is mortal, than these couriers; the Persians invented this system, which works as follows. It is said that there are as many horses and men posted at intervals as there are days required for the entire journey, so that one horse and one man are assigned to each day. And neither snow nor rain nor heat nor dark of night keeps them from completing their appointed course as swiftly as possible.⁹⁸

The Southern Steppe or Turanian type followed the same traditions as the Central Asian type in that he lived amongst a primarily nomadic people on the open steppe lands. Although he was physically quite different from his northern counterpart – being all long, lean angles instead of short and wiry – he nonetheless fulfilled many of the same tasks. Where the two differed was in their environmental adaptations. The short, shaggy Central Asian horse was well suited to the extreme winters of the Northern Steppe. While he could manage the dry heat of the desert, it was (and is) far more common for the inhabitants of these regions to rely on the Bactrian camel than the horse. The Turanian horse, on the other hand, was ideally adapted for life in the desert with his 'dry', sparse appearance. Much like the Akhal-Teke, the long, angular limbs of these animals allowed them to move effortlessly over soft terrain. Their 'dryness', as with the Mediterranean horse, permitted them to dispel heat quickly and for sweat to dry fast. These horses, however, were not well suited to

life in regions that experienced bitter cold winters. Excavations of the Pazyryk kurgans in the Altai Mountains have shown that this Near Eastern type was imported to the region and thus required specialized care not provided to the native Central Asian type. Rudenko tells us:

On the horny walls of the hoofs of many horses from the excavation uneven creases can be seen, the so-called 'rings', testifying to famines survived, found commonly, as is well known, in winter conditions on open-air feeding 'underfoot'. It indicates that the majority of horses during the winter received little or no supplementary feed. At the same time the hoofs, or more exactly the horny walls of the hoofs, of the best or as Vitt calls them the true saddle-horses, do not show this feature. Evidently during winter special conditions were created for them, different from those experienced by the others.⁹⁹

What does this mean for warfare? Although the Central Asian horse had a broader range of environmental adaptation, the Turanian horse had a much greater repertoire of uses on the battlefield. The Turanian horse, like his Central Asian relative, was used for a variety of day-to-day tasks, as well as war. This made for a very workmanlike animal. The nomads of the Near East relied on their horses for mobility for precisely the same reasons as the Central Asian nomads – the success of the nomadic lifestyle depended on it. The traditional mode of mounted combat echoed that of the north – the mounted archer. These horses were just as suited to the job, being sure-footed and light. Although taller than the Central Asian horse, their lean, slender build was conducive to the style of riding required by the mounted archer who could easily direct the animal with leg and weight aids alone.

Where the southern horse differed from the Central Asian was in his suitability for various kinds of mounted combat. The larger size of this horse permitted his use not only for mounted archery, but for light to moderately armed combat as well. The cavalry forces that accompanied Xerxes to Greece were armed with lassos, swords, bows and spears depending on their place of origin.¹⁰⁰ Some of the Persian cavalry at the Granicus fought with javelins.

Arrian tells us that during the opening action of the battle ‘the Persians shot at them from above, some hurling javelins into the river from the bank’.¹⁰¹ The cavalry at Carrhae included a variety of arms and armour:

In the rear of these was posted a large body of the rest of the cavalry, who carried shields, while others fought on horseback with bows and arrows.¹⁰²

There was clearly some difference in the amount of training the horses received as they were deployed in tactical formations, something rarely recorded amongst Central Asian cavalry. To do this required a significant degree of training and drill practice, not perhaps to the same degree as we shall see in the Mediterranean



FIGURE 5.4 Neo-Assyrian bronze plaque depicting an Assyrian rider mounted on the lighter type Near Eastern horse, c.883–859 BCE.

world; after all, these cavalrymen spent most of their time on horseback, but nonetheless training to a sufficient degree to allow a group of horses and riders to work in concert with each other:

A countless force of horsemen was crossing into Europe by the Hellespont, he said. Some of these were men wearing breastplates, the so-called *cataphracts*, others were warriors who fired arrows from horseback and – something against which there was no effective defense – found their mark more accurately when they had turned their horses in flight.¹⁰³

Like the Central Asian horsemen, those of the Near East had a long tradition of mounted archery. The Assyrian king Ashurbanipal is depicted hunting from horseback with bow and arrow. Darius I recorded that ‘as an archer, I am a good archer both on foot and on horse. As a spearman, I am a good spearman both on foot and on horse.’¹⁰⁴ At Plataea the Persian cavalry proved a nuisance to the Greeks thanks to their skill with bow and spear:

The horsemen rode out and attacked, inflicting injuries on the entire Greek army with their javelins and arrows, for they were mounted archers and it was impossible for the Hellenes to close with them.¹⁰⁵

After the death of Cyrus and the Greek generals, Xenophon and his fellow mercenaries were attacked by Mithridates, who

approached the Greeks as if he had friendly intentions, but, once he was close, his archers, both mounted and on foot, suddenly fired their bows and his slingers hurled their stones.¹⁰⁶

The Parthians remained true to their nomadic origins when it came to skill with the bow, as the Romans discovered at Carrhae:

But the Parthians now stood at long intervals from one another and began to shoot their arrows from all sides at once, not with any accurate aim (for the dense formation of

the Romans would not suffer an archer to miss his man even if he wished it), but making vigorous and powerful shots from bows which were large and mighty and curved so as to discharge their missiles with great force. At once, then, the plight of the Romans was a grievous one; for if they kept their ranks, they were wounded in great numbers, and if they tried to come to close quarters with the enemy, they were just as far from effecting anything and suffered just as much. For the Parthians shot as they fled, and next to the Scythians, they do this most effectively; and it is a very clever thing to seek safety while still fighting, and to take away the shame of flight.¹⁰⁷

On account of its immense geographical variation, the Near Eastern environment produced two distinct types of horse: the Nesaeian and the Southern Steppe or Turnaian horse. As we have seen, these two types were physically very different from each other and thus suited to a range of uses. This natural equine diversity allowed the kingdoms of the Near East to build armies heavily based on the horse. Likewise, it follows that the Near East was a locus for equine military innovations. The horsemen of the Near East were the first to make large scale use of chariots in battle, the first to deploy organized cavalry units, they created the first 'high-speed' communication system, they regularly deployed mixed 'heavy' and 'light' cavalry and they produced the first true heavily armoured cavalry in the ancient world.

The Nesaeian horse was truly unique among the ancient horse types. He represents what a fluke of nature can create – in this case naturally occurring high-protein clover led to the natural development of a muscular, robust animal. This in turn allowed the armies of the Near East to create a kind of cavalry not possible elsewhere – the cataphract. Effective cataphract units require Nesaeian type horses, and these must have access to high-protein lucerne in order to create and maintain body condition. Thus, the Nesaeian horse represents what nature can create, but also the limitations placed on it.

The Southern Steppe horse was a rangy, versatile animal. He was able to thrive in an arid, rocky and mountainous environment. As a result, this type was a great all-around horse

ideal for travel/long-distance riding, athletics and a variety of fighting styles on the battlefield including skirmishing and rapid attacks. The agility and endurance of these horses made them particularly suited to mounted archery, much like their northern counterpart the Central Asian horse. The lean spare build of this type meant they were not suited to carrying heavy loads like the Nesaeen.

MEDITERRANEAN WARFARE

The hesitation to endanger their mounts on the battlefield did, to an extent, limit the way the Mediterranean horse was used in combat. Unlike other regions of the ancient world, military use was not dictated entirely by conformation, but by the practicalities and cost of raising, training and fielding a cavalry corps. The Mediterranean horse himself was a relatively versatile animal. He had evolved to survive in less than ideal conditions; he may not have been required to endure the extremes of Central Asia, but he nonetheless managed to flourish in a predominantly mountainous, arid environment. Despite what might appear to be a tentativeness to engage in mounted combat, the horse actually fulfilled a number of important roles on the battlefield and on the march. Mounted troops served as scouts when reconnaissance was required; they were used to harass enemy troops on the march; similarly they were beneficial for skirmishing and raiding. In battle proper, cavalry could be used against enemy horse units; they protected the flanks of the phalanx; they could be used to harass the flanks of enemy infantry and (rarely) to attack heavily armed infantry.¹⁰⁸

Mounted troops were ideal for reconnaissance and Mediterranean armies regularly made use of them. They could cover more ground than a man on foot; gained a better vantage point of the surrounding land from their elevated position and had a better chance of escaping if spotted by the enemy. In his *Cavalry Commander* Xenophon places much emphasis on the importance of using horsemen for reconnaissance:

When riding on difficult ground away from roads, whether in hostile or friendly country, it is very useful to have some of

the aides-de-camp in advance of each regiment, that they may find a way round into the open in case they come across pathless woodland, and show the men what line they should follow, so that whole companies do not go astray.

If your route lies in dangerous country, a prudent commander will have a second advance guard ahead of his scouts for reconnaissance purposes. For it is useful both for attack and defense to discover an enemy as far off as possible.¹⁰⁹

Likewise, the psychological advantage of mounted scouts can be seen from Thucydides' account of the ill-fated Athenian expedition on Sicily:

Syracusan cavalry on reconnaissance was constantly riding up to the Athenian army and, among other insulting remarks used, asking them whether they had not really come to settle down in someone else's land rather than to resettle the people of Leontini in their own.¹¹⁰

One can only imagine what a demoralizing effect the Syracusan cavalry had on the Athenian troops as they constantly taunted and hurled insults at them, while the Athenians, who were predominantly infantrymen, were unable to chase them off, let alone retaliate in any significant way.

The primary function of the mounted scout was to search for any possible dangers ahead of the main portion of the army. They might be used to look for the shortest and most secure route for the army to take; Agricola relied on both mounted and un-mounted scouts to protect his army in Britain. Tacitus reports:

Had not Agricola been everywhere and ordered his strong, light-armed cohorts to scour the woods, like a cordon, and where the woods were thicker, dismounted cavalry, where thinner, mounted cavalry to do the same, undue confidence might have provoked a serious reverse.¹¹¹

Scouts could also watch over the route taken by an enemy force and report back to the main army with their findings. Caesar and

his commanders frequently made use of cavalry in this way during the campaigns in Gaul:

When the crops were beginning to ripen Caesar set out through the Ardennes to fight Ambiorix. He sent Lucius Minucius Basilus in advance with all the cavalry, to see if he could gain any advantage by traveling quickly and striking at a favorable opportunity.¹¹²

As well as finding ideal locations for battle, mounted men could travel ahead of an army on the march to find a suitable spot to set up camp.¹¹³

These mounted scouts had to be excellent horsemen as well as trained in cavalry combat. They were required to ride their horses over all sorts of unknown terrain, from rocky hillsides, to forests, to open plains. A rider can become very familiar with local terrain, remembering where holes or broken ground is located, but when riding through unfamiliar territory he has no such luxury. In this situation – especially if forced to ride at speed – the scouts have to rely on the athleticism and sure-footedness of their horses while maintaining a secure and balanced seat to help their mounts in the event of a stumble. Xenophon is clearly aware of this for the regular cavalry trooper, but his advice is even more applicable for the mounted scout:

Since it is necessary that the rider should have a firm seat when riding at top speed over all sorts of country, and should be able to use his weapons properly on horseback, the practice of horsemanship by hunting is to be recommended where the country is suitable and big game is to be found. Where these conditions are lacking, it is a good method of training for two riders to work together thus: one flies on his horse over all kinds of ground and retreats reversing his spear so that it points backwards, while the other pursues, having buttons on his javelins and holding his spear in the same position, and when he gets within javelin shot, tries to hit the fugitive with the blunted weapons, and if he gets near enough to use his spear, strikes his captive with it.¹¹⁴

As we saw above, training across country was especially important for the Mediterranean type horse, not because of any inherent physical faults, but on account of the husbandry practices followed in many part of the Mediterranean Basin.

It is likely these scouts/reconnaissance troops were at least lightly armed as they were venturing into unknown and often hostile territory. I doubt they would be equipped in full cavalry panoply, but they would have at least worn some form of light body-armour and carried a sword and possibly more. The exact specifications of arms and armament must have depended on each particular situation – whether the troops were sent out as a specific reconnaissance unit, or were a detachment of the regular cavalry acting as scouts while on the march. Either way, they had to be prepared for the possibility of attack.¹¹⁵

Encounters between enemy scouting parties were not infrequent and could result in minor skirmishes as occurred between the scouts of Caesar and Labienus in Africa:

Caesar sent some cavalry out ahead, but came right up to the place without being aware of the ambush. Labienus's men, however, either because they misunderstood or forgot his instructions, or because they were afraid of being caught in the hollow by Caesar's men, began coming out in ones and twos from the rocks and making for the crest of the hill. Caesar's cavalry pursued them, killed some and captured some alive; they then pushed straight on towards the hill, dislodged Labienus's holding force, and occupied the position. Labienus and part of his force managed with difficulty to escape.¹¹⁶

These unexpected encounters occasionally resulted in a full-scale battle. Livy describes an unplanned pitched battle between the armies of Hannibal and Scipio at the Ticinus River in 218 BCE:

and then Scipio moved: advancing with his cavalry and light-armed infantry spearmen to reconnoiter the enemy's position and get what information he could at close range about the nature and strength of their forces, he unexpectedly fell in with Hannibal and his own cavalry

who were out on a similar reconnaissance . . . for each the first sign of an approaching army was the cloud of dust raised by the movement of horses and men over the dry ground. Both columns halted and prepared to engage. Scipio posted his spearmen and Gallic cavalry in the front line, with the Roman troops and the pick of the allies in support. The native (or 'bridled') cavalry formed the center of Hannibal's line, with the Numidian horse on the wings. Hardly had the battle-cry been raised, when Scipio's spearmen broke and ran, hoping to save themselves amongst the support-troops in the rear. For a time the respective cavalry formations maintained an equal struggle, until Scipio's squadrons found themselves seriously handicapped by the spearmen – infantry troops – who had got mixed up with them. Many fell from their horses, or dismounted to bring aid to hard-pressed comrades; to a great extent things were assuming the aspect of an infantry battle, when suddenly the Numidian horse, which had formed the enemy wings, executed a circling movement and appeared in the Roman rear . . . The route of the spearmen – the first object of the Numidians' attack – was pretty complete; the cavalry, on the other hand, maintained cohesion, forming a screen round the wounded consul¹¹⁷

The scout's horse had to be a sturdy, sure-footed animal with great stamina and a sensible temperament, neither flashy nor imposing. They had to blend into the landscape, moving quietly and carefully across the ground. As they were ridden over unfamiliar and unpredictable terrain, they needed to be sure-footed. These horses could not be slow plods, however. Numerous accounts from the literary sources indicate that mounted reconnaissance expeditions were often involved in skirmishes and combat. Thus, the scouting horse had to be trained as a warhorse as well. Likewise, he needed to provide a turn of speed in situations where a hasty retreat was deemed the better option. Most importantly, the reconnaissance horse had to be calm and sensible. This horse could not get agitated when forced to separate from the group, his 'herd'. In other words, he could not be a herd-bound animal. Herd-bound horses become stressed when taken away from their herd-mates. Typically they become vocal – constantly calling to their

companions. They will also resist the commands of their rider, often refusing to move forward while constantly attempting to bolt back towards the herd. It is easy to understand why such a horse was undesirable as a scout. The equine scout also had to keep calm in high-stress situations, even if his rider was tense and anxious. Many high-strung or hyper-sensitive horses become attuned to the emotions of their riders and react accordingly. When on reconnaissance, the troopers would be understandably watchful in an unfamiliar or unpredictable environment. The horses had to overcome their instinctual flightiness to remain obedient to their riders. The Mediterranean type of horse filled these requirements. These primarily mountain horses were tough and sure-footed, able to pick their way neatly and efficiently over rocky, uneven terrain. They had the stamina to cross steep hills or mountain slopes, were small and nimble enough to navigate dense forests and had the stamina to carry on over long distances. The compact, athletic conformation of these horses allowed them to wheel and spin – whether in combat or flight.¹¹⁸

Horsemen were used to fulfil several functions when it came to providing an army with supplies. The speed and mobility offered by the horse allowed small bands of cavalymen to move goods with relative ease.¹¹⁹ Of primary concern for any large army on the march was access to a steady supply of food. Horsemen were ideal for moving livestock from one area to another:

So he [Epaminondas] marched back as fast as he could to Tegea. Here he rested his hoplites, but sent the cavalry on to Mantinea. In calling upon them for this further effort, he told them that in all probability all the cattle of the Mantineans were outside the city wall and all the people too.¹²⁰

Mounted units were frequently sent into enemy territory to destroy crops and buildings in order to deprive their opponents of food and shelter. Livy relates such an attack on Falernian territory by Hannibal:

He [Hannibal] had the guide scourged and crucified as an example to others, took up a position which he strongly fortified, and sent a squadron of cavalry under Maharbal to

raid Falernian territory. The raid was a destructive one, and caused immense damage to property as far as Sinuessa, and terror and confusion over a still wider area.¹²¹

More importantly, however, horsemen provided essential protection to unmounted foraging parties sent out from camps and towns during times of war. Even a small group of enemy horsemen presented a considerable threat to foragers on foot. One horseman can control a much larger group of men on foot with relative ease thanks to the agility and speed, not to mention to intimidation, offered by his mount. One need only look at the manner in which a small number of cowboys can control a substantial herd of cattle, or the effect of a small group of mounted police on a much larger mob to see the truth in this. Caesar discovered this while engaged in skirmishes with Pompeian forces near the town of Ucubi:

On the following day some cavalry and light infantry deserted to us from the enemy camp. At that time also about forty of their cavalry made a sortie against a watering party of ours, killed several, and carried some off alive; eight of their cavalrymen were captured.¹²²

When the Thirty took control of Athens after the Peloponnesian War, they quickly followed the Periclean tradition in recognizing the importance of using horsemen to prevent their opponents from plundering the Attic countryside:

It was clear to the Thirty that the enemy would also get plunder from the country estates unless there were forces available to protect them, so they sent out nearly the whole of the Spartan garrison and two divisions of cavalry and stationed them in the outlying districts about two miles from Phyle.¹²³

The always clever Julius Caesar not surprisingly recognized the amount of protection offered by even a small group of mounted men, and apparently never sent out foragers without a detachment of cavalry:

These attacks became more and more frequent. Eventually Caesar learnt from a prisoner that Correus had assembled a picked force of 6000 of his bravest infantrymen and a thousand cavalry, with which he intended to lay an ambush at a place where he expected the abundance of corn and hay would attract the Romans. Accordingly, the cavalry which always escorted the Roman foragers was sent there¹²⁴

The speed and mobility provided by the horse ensured that the only way to stop an incursion of mounted raiders was to send horsemen out against them. Any attempt to capture or repel mounted raiders on foot would be quite difficult, even in territory that did not favour cavalry.

Finally, cavalry provided a more immediate threat to any raiders. A unit of horsemen could burst out unexpectedly from behind city gates at a rapid pace to fall upon unsuspecting raiders much faster than any infantry group. The speed and endurance of the Mediterranean horse also allowed him to chase down the invaders over a great distance as the Olynthians discovered during an attempt to raid Apollonia:

It so happened that on this same day Derdas had arrived with his own cavalry and was having his morning meal in Apollonia. When he saw the raiders he made no immediate move, but saw that his horses were saddled and bridled and that their riders were fully armed. The Olynthians now came riding up insolently right into the suburbs and even up to the city gates and it was just at this moment that Derdas with his men in close battle order charged out on them. As soon as they saw him, the Olynthians turned and ran, and he, once they were in flight, did not stop pursuing them and cutting them down for twelve miles until he had driven them right up to the wall of Olynthus.¹²⁵

Even the primarily infantry Spartans were forced to acknowledge the necessity of maintaining a unit of cavalry for the purpose of protecting their territory from raids:

and [the Spartans] committed as they were on every side to a form of warfare where mobility was what counted and where attacks were very difficult to guard against. Thus they raised a force of 400 cavalry and a force of archers – something quite at variance with their normal way of doing things – and in fact they now became more than ever irresolute in their military conduct¹²⁶

The Mediterranean horse was generally suitable for the task of raiding and foraging and defending territory from enemy raids. They were not, however, invincible. If deployed daily over any length of time, the topography of the Greek and Italian peninsulas could have a detrimental effect on the horses. The best example of this can be found in Thucydides' description of the Athenian mounts stationed at Decelea:

And as the cavalry rode out daily upon excursions to Decelea and the guard the country, their horses were either lamed by being constantly worked upon rocky ground, or were wounded by the enemy.¹²⁷

The effects of these continuous excursions on the Athenian horses are not surprising. The ground of Attica and most of the Greek peninsula is dry and rocky. Even the most well-built, sturdy hoof would not be able to withstand the constant abrasion caused by daily use on such terrain. The hoof wall would be worn down and the sole of the foot bruised from concussion. Exceedingly dry conditions might also cause the hoof wall to crack, creating further weaknesses in the foot structure. The only cure for these ailments is rest and time to allow the wall and frog to grow. It was for this reason that the horseshoe was eventually created as a means of providing stability and durability for the hoof. This did not happen during the time periods covered in the scope of this book.

The primary use for cavalrymen when an army was on the move was to protect their lines from attack; generals recognized the likelihood of enemy horsemen falling upon the flanks of a column. When marching against Jugurtha, Metellus

himself led the van with the light-armed cohorts as well as a picked body of slingers and archers, his lieutenant Gaius Marius with the cavalry had charge of the rear, while on both flanks he had apportioned the cavalry of the auxiliaries to the tribunes of the legions and the prefects of the cohorts. With these light-armed troops were mingled, whose duty it was to repel the attacks of the enemy's horsemen, wherever they might be made.¹²⁸

Horsemen were ideal for this job for two reasons. Their higher elevation on horseback gave them a better vantage point to watch for enemy attacks. Unlike the marching infantrymen who focused on staying in time with each other and where they were putting their feet, the horseman was constantly looking ahead and thus more likely to spot any potential threat. Secondly, the cavalry did not necessarily march in neatly ordered ranks like the infantry, but rather in loose groups. This allowed them to break away from the main body of troops rapidly to defend the column without disturbing the overall organization of the marching formations. Once again, the Mediterranean horse was well built for these actions. His lightweight, compact body was quick and nimble thus allowing him to wheel away with a controlled burst of speed. At the same time, he was well suited and regularly trained to work up and downhill at speed. Xenophon especially emphasizes the importance of training a horse to leave his companions while still remaining obedient.¹²⁹ Likewise, the charge from concealment performed at the beginning of the *hippika gymnasia* was useful for training horses to perform sudden actions while on the march.

In the same way that the Mediterranean horse provided protection for a marching column of troops, he could likewise harass enemy troops on the move with rapid and sudden attacks. The physical requirements to perform this task were similar to those found in horses defending a column, as well as those needed for scouting. Once again the horses had to be perfectly obedient, agile and sure-footed, as we can see from the following episode in the *Hellenica*:

The cavalry of the Athenians and Corinthians, seeing the strength and the numbers of the opposition, kept their

distance from the enemy army. But the cavalry sent by Dionysius, in spite of their small numbers, rode along the enemy's line either as individuals or in small detachments and charged down on them, hurling their javelins. When the enemy moved out against them, they would fall back, and then face about and hurl their javelins again. And in the course of all this they would dismount and have a rest; and if they were attacked while dismounted, they would easily leap on their horses and ride away. But if the enemy pressed his pursuit far from the main army, they would turn on them while they were going back again, and with volleys of javelins give them a very rough time.¹³⁰

Small groups of horsemen could be sent out in conjunction with light-armed infantry to harass forces on the move. The two groups could work together and independently; the horsemen excelling at rapid attacks and manoeuvres in open ground, whilst the light infantry could move quickly through wooded areas and broken ground, as well as being easier to conceal.¹³¹ In a similar vein, Mediterranean cavalry with their discipline and mobility could be used to create a delaying tactic or diversion to allow a marching army to reach a particular location:

The only course left to Caesar was to use his cavalry to harass and impede the enemy's column on the march, for his own bridge required a long detour, and so the enemy could reach the Ebro by a much shorter route. Accordingly, he sent cavalry across the river, and when the Pompeian commanders broke up camp in the small hours of the morning, these cavalry suddenly showed themselves at the rear of the column and, milling around in great numbers began to hinder and obstruct the march.¹³²

The most logical use of cavalry in battle is against enemy horsemen. Because of the speed at which they could move, cavalry were frequently used to open a battle. These opening engagements were rarely mild affairs. In many cases the effect of the initial cavalry attack determined the outcome of the entire battle as the Spartans discovered at Olynthus:

After the enemy had come out and formed up in line in front of the city wall, their cavalry in massed formation charged down on the Laconians and Boeotians. They struck Polycharmus, the Spartan cavalry commander, down from his horse and covered him with wounds as he lay on the ground; they killed others, and in the end forced the cavalry on the right wing to turn and run. As the cavalry fled, the infantry on their left began to give way.¹³³

At Pharsalus, it was the struggle between Caesarean and Pompeian cavalry that turned the tide of the battle in Caesar's favour:

At the same time the cavalry all charged forward, as instructed, from Pompey's left wing, and the whole horde of archers rushed out. Our cavalry failed to withstand their onslaught; they were dislodged from their position and gave ground a little. Pompey's cavalry thereupon pressed on the more hotly and began to deploy in squadrons and surround our line on its exposed flank. Observing this, Caesar gave the signal to the fourth line which he had formed of single cohorts. They ran forward swiftly to the attack with their standards and charged at Pompey's cavalry with such force that none of them could hold ground. They all turned, and not only gave ground but fled precipitately to the hilltops.¹³⁴

Cavalry units were not only deployed at the start of an engagement, but also to re-invigorate the fighting after lulls or pauses in the action.¹³⁵

After fighting the opening manoeuvres of a pitched battle, the cavalry typically continued to fight as the infantry moved up to join them. The infantry would quickly take advantage of any gaps or weaknesses in the enemy ranks created by the initial cavalry battle. The infantry that joined the cavalry were usually of the light-armed variety; these troops being swifter and more agile thus allowing them to move around the cavalry; moreover they were not required to keep the same tight phalanx as the heavier infantry. Nonetheless, under certain circumstances, the heavy infantry would move up to fight alongside the cavalry. Units of horsemen were also used to relieve pressure on their infantry,

especially when that infantry was under aggressive attack by enemy cavalry. The purpose of these charges was not always to annihilate the enemy cavalry, but to give the foot soldiers time to catch their breath and re-organize themselves. At other times, an unexpected cavalry charge could bring the engagement to a stalemate, or force a halt in the action for the time being. On more than one occasion, the cavalry could determine the outcome of a battle by halting the charge of their opponents and thereby giving the infantry a chance to catch their breath and re-group.

Cavalry skirmishes frequently broke out between enemy units of mounted scouts. These encounters could lead to unexpectedly savage battles:

While this operation was in progress, Hannibal had sent a part of 500 Numidian horsemen to try to find out the location, strength, and intentions of the Roman force. The Numidians were met by a party of 300 Roman cavalrymen, who had been sent, as I have already mentioned, from the mouth of the Rhone to reconnoiter. The fight which followed was, in spite of the small numbers engaged, a surprisingly savage one; many were wounded and the losses in killed were about equal on both sides. It was only when the Romans had already had nearly enough that the Numidians broke and fled, and so gave them the victory.¹³⁶

Cavalry could prove most useful in hindering the manoeuvres of enemy infantry. This did not necessarily require a full-on cavalry charge against a massed phalanx of infantry, but was more frequently a series of rapid attacks and withdrawals to harass the flanks of the infantry, causing them to break formation or loosen their ranks:

The Athenian right put up more of a resistance. Cleon himself had no intention of standing his ground; he immediately took to flight and was overtaken and killed by a Myrcinian peltast. But his hoplites formed up in close order on a hill, where they beat back two or three attacks made on them by Clearidas, and only gave way in the end when they were surrounded by the Myrcinian and Chalcidian cavalry



FIGURE 5.5 The chaos of hand-to-hand combat as depicted on the Portonaccio Sarcophagus, c.150–90 CE.

and the peltasts, whose weapons thrown from a distance made them break their ranks.¹³⁷

The sources make it perfectly clear that any hoplite phalanx was very much at risk if they were without cavalry to protect their flanks, a fact Athenagoras points out in the Sicilian debate:

I [Athenagoras] know certainly that they will not have any horses with them, nor will they get any here, except for a few from the Egestaeans; nor will they have a force of hoplites equal to ours ... and how much less of a chance will they have with the whole of Sicily united, as it will be, against them, with their own base a mere fortification thrown up by a naval expedition, living in tents, and only provided with the barest necessities, unable to move in any direction because of our cavalry?¹³⁸

As mentioned above, cavalry would only very rarely attack a massed infantry formation head on. The reasons for this are straightforward enough: basic equine behaviour does not encourage a horse to move willingly into what would appear to be a solid, sharp wall. Even with horses willing to charge said wall, the risk of serious injury is greater – both for breaking legs on solid shields or being impaled on a solidly planted spear. It was far more logical to attack the exposed flanks as this was a more inviting option for the horses. My own experiments have shown that the most important factor is whether or not the horse thinks he can fit his body through a gap. If he can easily put his head and neck through an opening, he will willingly go through, even if he bumps or shoves the infantry on either side of him. To train a horse to push through a gap is not as complex as it might seem, once again thanks to equine behaviour. The main formations used by the Greek cavalry – the wedge, rhomboid, diamond – all have one thing in common: they start with a narrow point. If the cavalry commander puts brave and dominant horses as these points, simple herd mentality will ensure that the rest of the cavalry horses follow. The Mediterranean preference for riding stallions was well suited to these tactics as a dominant stallion – like Bucephalus – will ‘attack’ a threat with very little encouragement from his rider, especially if this characteristic is encouraged through training. Not all horses are brave. This does not, however, negate their usefulness in a cavalry formation. These less dominant or more cautious horses can be placed in the centre of the formation, where they will follow the leaders with little to no hesitation. Using the same principle, cavalry horses could be trained to attack the front of a phalanx, as Alexander proved at Chaeronea; nonetheless, this is still a very risky move, even with well-trained animals:

Then Alexander, his heart set on showing his father his prowess and yielding to none in will to win, ably seconded by his men, first succeeded in rupturing the solid front of the enemy line and striking down many he bore heavily on the troops opposite him. As the same success was won by his companions, gaps in the front were constantly opened. Corpses piled up, until finally Alexander forced himself through the line and put his opponents to flight.¹³⁹

As we saw above, infantry frequently moved up to join the cavalry after the initial skirmishes of a battle had begun. A combined attack of horsemen and infantry would have been formidable. The cavalry could scatter and ride down opponents, while the infantry both protected the horsemen from attack and cut down anyone on the ground. The infantry that accompanied cavalry were typically of the light-armed variety as their fighting style and armaments did not require them to remain in close ranks to be effective. The greater speed permitted by their light equipment also made it easier for them to keep pace with the horsemen who would not have been galloping flat out, but advancing at a steady, controlled pace:

Agesilaus was aware that the enemy were still without their infantry, while he had every branch of his newly trained army at his disposal. Now, therefore, he thought, was the moment to bring the enemy to battle, if he could. So, after he had made the sacrifices, he led his phalanx directly against the line of cavalry that was facing him. He ordered the hoplites in the age group 20 to 30 to run and close with them and told the peltasts to take the lead at the double. He also ordered the cavalry to charge, telling them that he and the whole army were following them in support. This charge of the cavalry was held by the Persians, but when they found themselves confronted by the whole force and fury of the attack, they broke.¹⁴⁰

Horses were an essential part of the pursuit; if they were lacking on either side, the pursuit would be a short, simple affair. Even a victory could be snatched away if the opposing side were able to flee the battlefield on horseback. The Greek mercenaries of Xenophon's *Anabasis* quickly learnt the importance of mounting at least a portion of their troops when

the Greeks had no cavalry and their foot soldiers could not catch up with the enemy soldiers, who had a good head-start in their flight, within the short distance allowed them by the fact that they could not afford to chase their opponents so far that they became separated from the rest of the army. Also, even in flight the barbarian horsemen were inflicting

wounds, by turning and shooting arrows from the backs of their horses, and every foot the Greeks covered in pursuit had to be fought for as they fell back again.¹⁴¹

One of the primary functions of Mediterranean cavalry was to enable an effective pursuit of a defeated enemy. As seen in the above passage from the *Anabasis*, an attempt at a pursuit or an escape was pointless if one lacked cavalry. On the other hand, the cavalry of a defeated side were known to flee the battlefield and leave the infantry to their fate, sometimes even while the battle was still in progress:

Having rested his horsemen until midnight, Alexander hastened toward Arbela, intending to capture Darius there with all his treasure and all the royal accoutrements. He reached Arbela the next day, having covered more than seventy miles since the battle ... nearly a hundred of Alexander's men perished, and more than a thousand horses died from wounds and the stress of the pursuit. Almost half of these horses belonged to the Companion cavalry.¹⁴²

The pursuit was a risky manoeuvre that could go either way for the pursuer. They might rout the enemy and achieve complete victory, or the defeated foe might outdistance them. In this instance a general would have pushed his horses and men beyond their limits to no purpose. Finally, the pursuer ran the risk of being ambushed by the enemy and suffering a defeat as a result of this. It is unlikely that mounted troops would have been able to maintain tight formation during a pursuit, thereby making them more vulnerable to attack. Horses and riders would be suffering from varying stages of fatigue, placing them at greater risk of stumbling or falling. The blood of men and horses would be up after fighting their way through the enemy. This could cause the horses to become more erratic and difficult to keep under control:

Taking the Companion cavalry, the Scouts, the mercenary cavalry under Eriguios' command, the Macedonian phalanx (except the men assigned to guard the treasure), the archers,

and the Agrianians, Alexander went after Darius. Owing to the urgent pace of the march, many of his soldiers were left behind exhausted, and the horses were dying¹⁴³

The Mediterranean horse was a very versatile animal. As we have seen, his limitations or restrictions on the battlefield came not so much from his conformation as from his cost. Thus prior to the campaigns of Alexander, Mediterranean cavalry was rarely used for hand-to-hand combat. For the most part this strategy worked. Even during the carnage of the Peloponnesian war, cavalry rarely engaged in fierce combat on the battlefield. The conformation and overall physical adaptations of the Mediterranean horse made it well suited to the various roles it fulfilled in Mediterranean armies. The close-coupled body made them easy to collect and balance, while their long legs (comparative to height) provided a turn of speed when necessary. These were mountain horses, agile and sure-footed with hooves strong enough to hold up in dry, rocky terrain. The Mediterranean horse was ideal for the light skirmishing, scouting and rapid attacks and retreats used by the Greek and Italian armies. Nor was this horse unsuitable for close combat; the sources make it clear this did occur on occasion. They were not so small or light that they could easily be overpowered. They were sizable enough to present an imposing threat to any man on foot. The only downside to this type was their ability to bear weight. While a fit Mediterranean horse could carry a moderately armoured man with little trouble, they were not match with the Near Eastern type of horse when it came to overall weight-bearing ability. The native Mediterranean type was not a cataphract and would have buckled under the weight of that much armour. Likewise, they paled in comparison to the steppe type when it came to endurance and the ability to withstand extremes of climate. Only when Greek armies began to campaign further afield into Asia Minor did it become necessary to use the horse as a weapon in and of itself on the battlefield.

CHAPTER 6

THE SPORT HORSE

The Industrial Revolution and subsequent mechanization of farming, transportation and warfare meant that the horse no longer remained a necessary tool in many parts of the world. With the horse appearing to become obsolete, it was generally thought that he would slowly disappear. The reality, however, was very different. Recreational riding became more popular than ever before and the horse found a new role as companion, pet and athlete. In the twentieth century horse sports took on a degree of organization and professionalism that created a completely self-sustaining industry that today produces billions of dollars annually. The horse was no longer the prerogative of the elite and the military, but instead became accessible to a huge range of people from various economic backgrounds – particularly the middle class. Although a deep love for equines – *hippomania* again – is at the root of this, the pull of competition is also a significant factor. Horse sport plays a massive role in the horse industry at both amateur and professional levels all over the world. Equine athletics were not a result of industrialization; indeed, equestrian competition has existed for thousands of years. What changed was not the nature of sport: there are striking similarities between modern equestrian competition and its ancient counterparts; rather the difference was accessibility: not from the viewpoint of the spectator, but of the participant as competition opened up to individuals of any social class or gender.¹

Horse sport is now a massive industry, employing breeders, trainer, grooms, riders, veterinarians, farriers, saddlers,

nutritionists, physiotherapists, chiropractors and many others. The animals who compete at the top echelons of sport are highly specialized and can be worth millions of dollars. They have been bred and trained to excel in one specific sport and everyone who works with them focuses solely on preparing them for competitive success. At the lower levels a horse might compete in a variety of different classes as an 'all rounder', but the amount of care and training he receives is rarely less than his specialist counterpart, particularly amongst the amateur recreational competitors. So what, then, is the purpose of horse sport today? For some it is a hobby and passion – it provides an opportunity to test yourself and your horse after working to achieve a certain goal; for others it is a lifestyle, while for others it is a career. At the base of it all, this is not so different from antiquity.

From its earliest incarnation, horse sports have been tied to the elite: not without reason has horse racing long been called the sport of kings. The association between equestrian athletics and wealth is well-founded. As we have already seen, the breeding, training and maintenance of horses – *hippotrophia* – is an expensive and time-consuming pursuit. The sport horse was in many ways the ultimate symbol of conspicuous consumption in antiquity. Unlike their cavalry or chariotry counterparts, the sport horse served no necessary state or agricultural function: his sole job was to win competitions and in doing so provide greater fame and wealth for his owner. Individuals like Alcibiades built up large stables of equine athletes, and the buying and selling of top animals must have been a lucrative business. In the Greek world the hippodrome stood apart from the stadion both literally and figuratively: the events of the hippodrome belonged to the rich as only they could afford to furnish horse(s) riders or drivers with the necessary accouterments. Alcibiades reportedly stated that the equestrian events were the only type of physical competition worthy of the upper classes, while princes and kings regularly entered the equestrian events, they rarely (if ever) deigned to compete in the athletic competitions.² The sheer expense associated with horse racing placed it beyond the realm of possibility for the majority of people, and those who attempted to make a go of it without substantial funds to back them up soon

found themselves in debt much like the anxiety-ridden Strepsiades in Aristophanes' *Clouds*.³ In the circuses of the Roman world things were a little different. Chariot racing remained expensive, but it became a highly organized, professional industry managed by the state. The teams ran not under the name of a particular owner, but for a colour backed by the passion and enthusiasm of thousands of supporters.

What is perhaps most fascinating about equine competition is that despite its inherently elite nature, the events – particularly chariot racing – were immensely popular with the masses. Few fans of the racetrack could ever hope to own a horse, let alone a top racehorse; they could not participate as competitors even at a local grassroots level, but they were nonetheless fanatical devotees of the track, especially in the Roman world. Certainly the danger of the race had something to do with things: crashes were an all too common occurrence. We can also take into account the general thrill and spectacle of the events. But the horse himself must also have played a significant role in the popularity of the events, once again drawing people in as he had from prehistoric times onwards.

Why did equestrian competition come about in the first place? What was its purpose? At its roots, horse sport evolved out of that other major use for the horse: warfare. As we have seen repeatedly throughout this book the battlefield is a most unlikely place to put a horse and getting him there took an incredible amount of training. The problem with training, however, is the constant repetition involved. Both horse and rider can become bored, especially when working in the confines of an arena, and boredom can lead to a loss of precision and obedience in both horse and rider.⁴ The boredom associated with constant arena work can cause many horses, particularly those who are quite clever, to go 'sour' – making them cranky and difficult to work with. Finally, the familiar confines of the ring do not simulate any of the noise, stress or chaos of the battlefield. It was necessary to take horse and rider out of the training ring for the purpose of exposing them to unfamiliar circumstances. One option was hunting and riding across country – both options encouraged by Xenophon; another was to participate in parades or performances that displayed the skill and training of horse and rider: events like

the *Hippika Gymnasia*.⁵ These spectacles had the benefit of placing horse and rider in an unfamiliar setting, while the need to perform perfectly before an audience would create anxiety and adrenalin similar to that experienced before battle. One final way to prepare horses and humans for war was sport. Competition provided an excellent motive for training as both people and equines are inherently competitive by nature. Horse sports exposed the participants to a highly charged environment with incredibly fit equines who, despite their training, could still explode as a result of pent up energy and tension.⁶ The rider or driver had to remain clam and focused despite their own nerves as the horse(s) would pick up on any anxiety and react accordingly. Finally, horse sports were and still are dangerous; absolute trust and understanding between human and equine(s) was necessary if they were to make around the course unscathed. Viewed this way, it is easy to see how sport provided excellent training for the battlefield, a place where the rapport between horse and human was even more necessary for survival.

Not every horse was suitable for competition. Much like the warhorse, the sport horse had to fulfil certain physical and mental requirements. While the warhorse required bravery, obedience and intelligence, the sport horses needed to have speed, stamina, bravery and above all else competitive drive. Not every horse enjoys competing and an indifference towards competition is not something that can be readily trained out of a horse. It does not matter how athletic the animal is, if he has no desire to win his competitive career will be short. Likewise, a horse that has less than ideal conformation but is intensely competitive can use that drive to allow him to defeat more likely specimens. This is what horsemen call 'heart': the desire to give every last ounce of strength to win. A horse with heart is in a precarious position: his rider/driver/trainer must acknowledge the physical limitations of the animal and refrain from pushing him past this, as such a horse will literally run until he drops. Competitive drive is closely tied to the horse enjoying his job. This may sound anthropomorphic, but there is no doubt that the top equine athletes enjoy jumping, racing, cutting, polo etc. If they were only doing it as a result of training or coercion, they would lack the spark that makes them stand out. Xenophon writes:

For what a horse does under constraint, as Simon says, he does without understanding, and with no more grace than a dancer would show if he was whipped and goaded. Under such treatment horse and man alike will do more that is ugly than graceful.⁷

So, at the end of the day, a horse may have ideal conformation, impeccable bloodlines, be well trained and extraordinarily fit, but if he has no desire to perform, he will never be successful in competition.

Above all, the ideal sport horse must be competitive; he must be driven to perform and to win. This is especially true of the racehorse. Competitive drive in horses, just as in humans, will push them past the limits of physical and mental endurance. The successful racehorse wants to be in front of the group. He is programmed to run. This desire comes in part from basic equine instincts: if one member of the herd takes off at a gallop, the others will follow suit and continue to do so until the leader stops. Something similar happens on the racetrack. The flight response is triggered as the whole group explodes from the starting line/gate at a gallop. What sets the ideal racehorse apart from his fellows is his drive to be in front.⁸ An excellent example of this driven behaviour can be seen in Pausanias' account of a *keles* race at Olympia where

The mare of Pheidolas of Corinth is called Breeze according to the Corinthian records, and just as the race started she threw her rider; yet she ran just as perfectly, turned round the post, and when she heard the trumpet quickened her pace and got to the umpires first; she realized she had won and stood still. The Eleians proclaimed Pheidolas the winner and allowed him to dedicate this mare.⁹

While this innate competitive drive can lead to great success it could also result in catastrophic disaster. Just as with humans, equine athletes could very easily push themselves past their breaking point. Their instinct to run and be in front makes a racehorse nearly impossible to pull up in the case of an injury; often they will continue to run on a shattered leg or with a bleeding nose until they collapse.¹⁰ There is also a great degree

of danger to the jockey or charioteer as the horse(s) often do not stop in the event of a fall; instead they keep running either from instinct or fear. The ramifications of this are shown clearly by the account of Orestes' 'death' in Sophocles' *Electra*:

But this time he let go of the left rein
 As the horse was turning. Unaware, he struck the edge
 Of the pillar and broke his axle in the center.
 He was himself thrown from the rails of the chariot
 And tangled in the reins. As he fell, the horses
 Bolted wildly to the middle of the course.
 When the crowd saw him fallen from his car,
 They shuddered. 'how young he was,' 'how gallant his deeds,'
 And 'how sadly he has ended,' as they saw him
 Thrown earthward now, and then, tossing his legs
 To the sky – until at last the grooms
 With difficulty stopped the runaway team
 And freed him, but so covered with blood that no one
 Of his friends could recognize the unhappy corpse.¹¹

Fitness plays a key role in the success and maintenance of the equine athlete, just as with humans. The creation of a fit athlete is the goal of any training regime, no matter what discipline the animal competes in. Training regimes for humans have become increasingly more precise and scientific; specific exercises, diets and supplements are used to produce the best possible performance.¹² The human athletes of the ancient world likewise partook of specialized training and dietary programmes. The training and conditioning of the sport horse, however, has typically followed less scientific methods, instead adhering to a *mos maiorum* tradition that is part art and part superstition. As Ely points out, even today racehorse trainers in the UK use the time-honoured system of 'daily cantering and twice-weekly workouts' to prepare national hunt horses for a race.¹³

According to Rose and Evans, the goals of any sport horse-training programme are six-fold:

1. Delaying the onset of fatigue (improvement in endurance)
2. Improvement in speed

3. Improvement in biomechanical skills
4. Improvement in the safety and longevity of the horse's racing career
5. Maintaining the horse's willingness and enthusiasm for exercise
6. Reaching the physiological potential of the individual horse.¹⁴

Rose and Evans are referring specifically to the racehorse, but these same six goals can be applied to almost every type of equine sport in antiquity and today. Why are these six training elements important and how do they serve to improve the equine athlete? Let us begin by breaking down each component and examining it in detail within the context of the sport horse.

1. *Delaying the onset of fatigue (improvement in endurance)*: Increasing a horse's endurance is important for a number of reasons. From a physiological standpoint, the horse is designed to move at speed. Moreover, they are capable of doing this over long distances, an evolutionary adaptation to allow wild horses to outrun predators. This uses a high percentage of aerobic energy, which in turn necessitates increased oxygen levels.¹⁵ In the wild, horses are constantly moving, thus they naturally build up fitness and endurance levels; any herd member who fails to do so does not survive for very long. In most domestic contexts, however, the situation is very different, particularly when horses are stabled or contained in small paddocks, as would be the case throughout much of the Mediterranean world. Unlike their wild counterparts, these horses have significantly restricted movement and rely on regular exercise programmes to improve or maintain condition levels. For these horses their endurance capacity must be built up gradually and carefully; any attempt to rush this process can result in a physical breakdown. A trainer begins the training process with lots of long, slow workouts at the walk and trot, gradually building up to short periods of work at speed, before finally progressing to workouts that include fairly equal amounts of walk, trot and canter, with gallop work a couple of times a week. Ideally the horse will also be worked across country. Hill work – riding at a controlled pace up short, steep hills or long gradual slopes – is especially beneficial for building up muscle tone and lung capacity.

Once the horse can work easily at all four gaits, the trainer can begin to introduce interval work; a type of conditioning that has been used for horses since the Bronze Age as indicated by the Hittite *Kikkuli Text*. Interval training alternates between short bursts of speed and longer stretches of controlled work. It thus makes use of both long and short fibre muscle groups. The benefits of this kind of training for the equine athletes of antiquity – particularly chariot racers – cannot be exaggerated. The hippodrome/circus required horses to alternate between explosions of speed on the straightaways and controlled balance around the tight turns. The *tethrippon/quadrige* was required to do this for 12 laps of the track, while at the same time remaining controlled enough to avoid the other teams. In such an event the importance of high endurance levels is paramount. A fatigued horse is a dangerous horse, posing a threat not only to himself and his team, but other horses on the track as well. A tired horse – one that cannot maintain levels of aerobic energy output – is more likely to stumble or collapse on the track. Modern studies have shown that

Accumulating longer canter distances tended to increase the odds of winning and decreased the odds of being pulled up during a race. Studies in human athletes have also shown that long distances at submaximal intensities are important for fatigue resistance in endurance activities.¹⁶

2. *Improvement in speed*: Speed is obviously of great importance in the racehorse; after all, the fastest horse wins. The horse must, of course, have the potential for speed and ability to begin with as determined by conformation and biomechanical systems. Just as with human runners, speed cannot be taught, only honed. Today's racing industry proves that it is not easy to breed for speed; even the best put-together horse with extraordinary bloodlines can prove to be a flop on the track. So, while breeding and conformation are the precursors to a fast horse, the presence of speed is often pure luck. In the case of chariot racing, there is also the issue of matching multiple horses with similar running abilities, not a simple task. If, however, a horse has the ability to run, training and fitness can improve upon this. In the case of the

chariot horse, it can also teach him to run fast, but in synch with his teammate(s).

3. *Improvement in biomechanical skills:* It is essential that the equine athlete maintain control of his body while competing. Even a slight stutter or mistake can spell disaster, especially on the racetrack. The racehorse has to be able to respond instantly to a jockey or charioteer's command. Hesitation could cost them a victory or result in a serious accident. As mentioned above, a chariot horse had to run at speed and in concert with his teammate(s); if one horse was slightly off stride from the others, the overall speed and stability of the team would be compromised. The first step to ensuring that a team could run smoothly and cohesively was in selecting horses of the same height and build. Any noticeable differences in these – for example, a short horse paired with a tall one, stocky and lanky, or even two horses of the same height but one with long legs and a narrow body, the other with short legs and a robust body – will make it nearly impossible to train the pair to move in harmony with each other. The team must also get along with each other personality wise. It is not terribly helpful to try and run a team of horses if two of them are constantly at odds with each other! Once a team had been matched for conformation and personality, they had to be trained to work together with all of the horses running in synch and taking an equal share of the load while learning to adjust their strides and speed to match each other and at the same time remaining closely attuned to their driver.

The ridden racehorse did not need work in concert with a teammate, instead he had to remain balanced and controlled underneath his diminutive jockey. The look of strain on the face of the Artemision jockey clearly shows that a jockey's control over his mount could be tenuous at times. If the jockey lost control of his mount or made a strategic error of timing or placement, his horse had to be able to physically react to the situation.

4. *Improvement in the safety and longevity of the horse's racing career:* The greatest determining factor in the longevity of a sport horse's career is soundness. As we have already seen several times, a horse has the greatest chance of a long working life if he is given a job suited to his conformation – in other words, form should dictate function. While minor conformation faults can be

dealt with using proper management, the overall physical composition of the horse must be one that is ideal for the career he has been chosen for.¹⁷

Nutrition is key in ensuring that the equine athlete develops and maintains a strong biomechanical system, while also ensuring he has sufficient energy to perform. This is not a simple matter – each animal has specific nutrition requirements that change depending on the status of his training and competition schedule. Some horses are ‘easy keepers’ who require little beyond grass and/or good quality hay to maintain condition; others are ‘hard doers’ who are difficult to keep weight on, especially during harsh weather. These animals require foods with a higher protein and fat content, but not necessarily a high-energy ‘heating’ food – the amount and type of feed given to them is closely tied to workload: a horse who is exercised lightly a few days a week does not have the same energy requirements as a racehorse in intensive training. Too much stored energy makes a horse high-strung and fractious as he is looking for a way to release pent-up energy. The easy-keeper must not be fed high-fat foods, his hay should be of good quality – but alfalfa should be avoided unless he is in hard work, nor should he be given unlimited access to rich grazing, particularly in the spring when the new grass appears as the good-doer is at a much higher risk of obesity and its related issues. The diet of the sport horse was closely tied to training. A young colt just being started does not have the same nutritional needs as a veteran racehorse preparing for competition. Likewise, the growing youngster has very different nutritional requirements from his fully developed counterpart. Likewise, a horse on a break from competition does not need the same amount of energy as when he is racing-fit, and his feeding regime must be altered accordingly.

Fitness is clearly an essential component in keeping a horse sound and healthy. Developing and maintaining the fitness of the sport horse is an exacting task, and the appropriate regime can vary considerably from horse to horse. The fitness programme is closely tied to the event a horse is training for: the physical requirements of a racehorse are not the same as those of a dressage horse; or, in the case of antiquity, the requirements of a chariot horse differed from those of a mounted racehorse. Factors such as the length of a

race, age of the animal, footing, climate and temperature all influenced the fitness regime of a particular animal. Some horses are easy to get fit, while others take more time. Some horses are more susceptible to injuries and must be carefully watched during training.¹⁸ The fitness schedule of an inexperienced youngster would be very different from that of an older veteran or even a horse coming back into work after time off due to injury or vacation. The youngster must be slowly introduced to an exercise programme as his joints, bones and muscles are not yet fully developed, and overwork can lead to serious physical issues that will shorten his competitive career significantly. The young horse also becomes mentally fatigued more easily than his older counterpart: sessions must be kept short and should end on a positive note – the trainer needs to avoid pushing a talented young horse past his physical and mental limits, as this will have lasting repercussions. The older horse in regular work requires a programme that will maintain his fitness and keeps him interested in his work: this horse knows his job and can create trouble if he is not constantly challenged. Finally, the horse coming back into work following a break either as a result of injury or vacation must be carefully re-introduced to exercise. If he is a sound horse who has only had a couple of weeks off for a short vacation, his overall fitness level should still be high, as it takes a horse at peak fitness a few weeks to ‘let down’; if, however, he has been out of an exercise programme for any length of time, it is necessary to gradually build up his fitness level again. Although it may be tempting to push him quite early on, this must be avoided as it will only lead to injury. If the horse is returning to training following an injury, it is of even greater importance that his programme be carefully thought out and watched to ensure that he remains sound and healthy. The equine athlete requires a varied training schedule that avoided the constant repetition of the same drills and exercises. This is for four reasons: first, to avoid the risk of repetitive strain injuries; second, performing the same exercise all the time actually hinders physical development as the body becomes used to it and the muscles etc. do not have to work as hard; third, cross-training alleviates boredom; finally, all athletes need a day of rest to allow their body to rest and recuperate: exercise strains and stretches the body, creating micro-tears in the

muscles. The only way for the body to properly benefit from regular exercise is to allow time for it to heal.

Veterinary care is an obvious element in maintaining a sport horse. This does not just involve treatment of an existing illness or injury, but also preventative care by ensuring that everything in the animal's body is ticking away as it is supposed to. Familiarity with the animal's body: heart and respiratory rates, the temperature of his legs, the existence of any regular lumps and bumps make it much easier to detect the early signs of injury and illness and (hopefully) prevent it from worsening. While veterinary care in the ancient world was not nearly as advanced as today, the veterinarian was nonetheless an important component in the equine athlete's life.

Finally, the day-to-day management of the horse played an important role in keeping a horse sound for work. Management includes a combination of the above-mentioned elements: nutrition, exercise and veterinary care, as well as the daily routine of stabling, turn out, grooming and general interaction with the horse. The majority of top sport horses today thrive on routine with feeding, exercise, turn out etc. happening at the same time everyday; any change in this routine can be stressful for the animal. There is no reason to assume that the sport horses of antiquity were any different, particularly the specialized equines of the hippodrome and the circus. Routine provides a sense of regularity and comfort for the horse, especially if he has been taken away from 'home' for a competition. By keeping the routine as regular as possible, the grooms are more likely to keep the horse calm, as opposed to overexcited and anxious. This not only makes him safer to handle, but prevents him from wasting energy needed for the competition. Any change in a horse's response to his regular routine, i.e. a reluctance to eat or drink, less urine or manure in the stall or a change in colour and texture, a change in temperament towards exercise or the items associated with it, can be indicative of a more significant physical or behavioural issue that can affect performance and soundness in the long run.

5. *Maintaining willingness and enthusiasm for exercise:* For a horse to be successful in competition he must want to do it: there needs to be an innate desire to run, jump, perform etc. As we briefly discussed earlier in this chapter, all top sport horses possess

'heart' – a drive that pushes them to jump higher, run faster, turn harder and so forth. Even a horse with heart can go sour and become an ill-tempered, recalcitrant competitor. Keeping a horse's enthusiasm for sport is not simply a matter of training. We just looked at how a repetitive training regime can have a negative physical and mental impact on the horse: the animal must be kept physically and mentally stimulated through a varied exercise programme and, if possible, be worked in different locations – not always on the track or in an arena. Down-time is equally important as it allows the animal to relax and just 'be a horse' – whether this is through regular turn out in a field or paddock, or by having a groom take the horse out for a walk and a graze, it is necessary the horse be allowed to decompress and slow down. Likewise, a regular extended break from training and competition provides the same benefits on a much larger scale, by allowing the mind and body to rest and recuperate from the stress of training and competition. This is essential if the horse is to remain interested in his work for any length of time.

6. *Reaching the physiological potential of the horse:* The final goal is the successful culmination of the above-mentioned five factors. Only by ensuring that the horse is at the peak of physical and mental fitness through diet, exercise and regular care can there be any chance of achieving his top physical potential. Even this must be carefully nurtured as the horse cannot remain in perpetual peak condition, his body must also be given the chance to slow down: if it remains tightly strung for too long, it will break. And so, the final challenge for the trainer is to ensure that his horse(s) peak physically and mentally at exactly the right time. This is a combination of art and science: the horse may have all his physical needs met, but the trainer also needs to understand the behaviour and personality of the animal: what stresses him out, what keeps him calm etc. if there is to be any chance of getting the horse to reach his physiological best.

THE GREEK WORLD

The equestrian events of the Greek games can be divided into two categories: the driven events and the ridden events. Equestrian competition does not appear to have been part of the programme

at the early Olympics. There is, nevertheless, evidence for the existence of chariot racing prior to the seventh century BCE, particularly in the epic/oral tradition as found in the *Iliad*. Likewise, it is unlikely that chariots would have been used so extensively on the battlefield without any sort of sport or competition developing as a way of training horse and driver, or just for letting off steam. The first horse race to appear on the programme at Olympia was the *tethrippon* (four-horse chariot) at the 25th Olympiad in 680 BCE. It is interesting that the chariot race did not appear earlier given the mythological association of the region and the games with the myth of Pelops and Hippodamaia as portrayed on the early classical east pediment of the temple of Zeus at Olympia.¹⁹ The omission of the horse races from the early games could be down to logistics: organizing and running the games was a complicated and time-consuming endeavour; throwing horses into the mix with their requirements of food, water and secure stabling/housing, not to mention preparing a large enough area of level ground to serve as a hippodrome. The second equestrian event added to the Olympic programme was the *keles* (ridden horse race) at the 33rd Olympiad in 648 BCE. Pausanias records the first victor of the *keles* at Olympia was the horse of one 'Krauxidas of Krannon'.²⁰ The introduction of the *keles* race at Olympia coincides with the appearance of the *keles* horse in literature and on pottery.²¹

Horse racing – both the *tethrippon* and the *keles* – was evidently quite popular during the Archaic period. Racing scenes were frequently used on Archaic Greek vases. The fact that these scenes appear on vases produced throughout the Greek peninsula attests not only to the popularity of the sport, but also to its inclusion in games outside of the Olympics. The first *keles* race at the Pythian games was held in 582 BCE and was won by Agesilaus of Lousoi.²² The Isthmian games introduced the *keles* in 508 BCE and a bronze plaque from what was likely a dedicatory statue of a racehorse suggests that the *keles* was part of the Nemean programme by the late sixth century. The *keles* must also have been one of the earliest events on the programme at the Panathenaic games as the *keles* horse and rider appears as a regular motif on early Panathenaic amphora.²³

The *tethrippon* and *keles* remained the only equestrian events at Olympia until the early fifth century when the *kalpe* was



FIGURE 6.1 Black-figure Tripod pyxis depicting a horse-racing scene. Early fifth century BCE.

introduced in 496 BCE. The *kaple* was a short-lived event and was dropped from the games after 444 BCE. Despite its brief existence, the *kalpe* nonetheless presents an interesting tie to the connection between sport and war. The *kalpe* was a ridden race for mares in which the riders were expected to jump from their horses and run alongside them for the last lap of the race. Pausanias writes:

The race for carts and the trotting race were instituted, one at the 70th and the other at the 71st Olympics, and Elis made a proclamation about them both at the 84th Olympics that in future there would be no carts and no trotting. When these races were first held Thersias of Thessaly won with his cart, and Pataikos, an Achaian from Dyme won the trotting. The beasts in this race were mares, and on the last lap the mounters jumped off and ran with the mares holding their bridles²⁴

The *kalpe* had close military connections: it is not easy to dismount from a moving horse while keeping your balance and maintaining control of your mount, and there are many situations where a cavalryman might find it necessary to perform an 'emergency dismount' in battle without letting go of his horse. The horse likewise had to learn to run along side his rider while maintaining a steady pace that matched the human's. The *kalpe* mare had to keep her rhythm and speed as her rider swung down from her back, then smoothly adjust her pace to match her rider. Any stutter or stumble might cost the pair a victory. We see echoes of this training in the *hamippoi* of the fourth century BCE.²⁵ The *kalpe* seems to have been unique to the Olympics, but it echoes the *apobates* races held at the Panathenaic games.

Out of all the chariot events the *apobates* race had the closest ties to warfare. This event was part of the equestrian competitions at the Panathenaia festival in Athens. Both literary and iconographic evidence indicates that this event involved a *tethrippon*, charioteer and warrior. The charioteer is depicted in the long, flowing garment typically associated with this role. The warrior is shown in various guises: he is frequently nude and always carries the cumbersome *hoplon*; he commonly wears a crested helmet. In some cases he bears a spear, but this is by no means a standard part of the motif. The race itself combined elements of the regular *tethrippon* and the *hoplomachia*. The charioteer performed his regular role of navigating the four-horse team around the track, with the added twist of the warrior mounting and dismounting from the chariot while the team was moving at speed.

The military implications and origins of this event are apparent. It clearly echoes descriptions of battle in the *Iliad* where the great heroes ride into battle on their chariots and frequently dismount to fight hand-to-hand combat, while their driver/charioteers maintained control of the team:

Diomedes spoke and leapt in all his gear to the
Ground from the chariot,
And the bronze armour girt to the chest of
The king clashed terribly
As he sprang.²⁶



FIGURE 6.2 Apobates scene on a votive fragment from the Sanctuary of Amphiaraos, end of the fifth century BCE.

Likewise, after being wounded by Padaros' arrow, Diomedes

Drew back again to his chariot and horses
 And stood there speaking to Sthenelos, son of Kapaneus
 'Come, dear friend, son of Kapaneus, step down from the
 chariot
 So that you may pull out from my shoulder this bitter arrow.'
 So he spoke, and Sthenelos sprang to the ground from his
 chariot
 And standing beside him, pulled the sharp arrow clean
 through his shoulder.²⁷

And later:

Nor did Sthenelos, son of Kapaneus forget the
 commandments
 That Diomedes of the great war cry had laid upon him,
 But he held where they were their own single-foot horses
 With their reins tied to the chariot rail, apart from the
 confusion,
 And making a dash for the fluttering-maned horses of Aineias
 Drove them away from the Trojans ...
 Meanwhile the warrior
 Mounted behind his own horses and caught up the
 shining reins²⁸

The structure of the *apobates* recalls a rite in honour of Poseidon at Onchestos where

To Onkhestos came, Poseidon's splendid grove
 There the new-tamed colt draws breath in his distress
 At pulling the beautiful chariot; down from his place to the
 earth
 The driver, though skillful, leaps and walks along the road;
 Then for a time the horses rattle the empty car,
 Sending dominion away. But if the chariot breaks
 Within the woodedgrove, they tend the horses
 But lean and leave the vehicle be – for so from the
 First was the rite.²⁹

The purpose of this peculiar rite and its relation to both sport and warfare might at first seem puzzling. It is, however, a test for the young, inexperienced horse to see if he has the stuff it takes to be a chariot horse – either for war or sport. As Teffeteller points out, the inexperienced animal is most probably yoked alongside an older veteran. There is nothing unusual about this; it is standard practice for teaching a young horse to drive.³⁰ Most importantly, this test proves that the young horse can think for himself; that is, he can maintain control of his nerves and remember his job, even when there is no charioteer there to tell him exactly what to do. Some horses are skittish, nervous animals who panic if there is no constant, firm hand present to reassure them and provide instructions. Such an animal is not ideal for the battlefield or the sporting arena.

It is easy to understand why a clever horse would be essential on a battlefield. A rider or driver might need his horse to think for himself while engaged in fending off a foe. The sport horse would require these skills for much the same as a mistake on the part of the charioteer or jockey in a race could be just as deadly as one on the battlefield. Thus, it was just as important for the horse to have the ability to extract himself from a sticky situation.³¹

The next major equestrian event added to the Olympic programme was the *synoris* (two-horse chariot) in 408 BCE: 'The race for couples of fully-grown horses called the Pair was held at the 93rd Olympics and Evagoras of Elis won it.'³² Thus, by the end of the fifth century the equestrian contests at Olympia were the *tethrippon*, *keles* and *synoris*; by the early fourth century the other three Panhellenic games had followed suit. The *synoris* was added to the Pythian games in 398 BCE, which was won by Exekestides of Phokis, and it became part of the Panathenaic games in the first half of the fourth century.³³

Following the introduction of the *synoris* race the equestrian programme at the Panhellenic games did not grow until the Hellenistic period with the introduction of the *polikon* – foal – races. Prior to this, the chariot and ridden races were open to adult/fully grown horses only. The *polikon* races emulated the original trio with the *tethrippon polikon*, *synoris polikon* and *keles polikon*, but the equine competitors were all two years old. The addition of the *polikon* races has been likened to the established programme of



FIGURE 6.3 Attic black-figure column krater depicting a synoris, c.525–500 BCE.

‘senior’ and ‘junior’ athletic events at the games.³⁴ The appearance of these equine age categories is most likely connected to the resurgence of interest in the equestrian events during the Hellenistic period.³⁵

The territories ‘inherited’ by Alexander the Great’s successors, particularly those of the Near East, had a deep-rooted tradition of *hippotrophia*.³⁶ The Ptolemies in particular embraced this tradition and developed a passion for horse racing.³⁷ These Hellenistic dynasts were Greek, and even though most of them resided outside the traditional borders of the Greek world they nevertheless had

the right to compete in the Panhellenic games. Participation in the games allowed them to emphasize their 'Greekness', while competing in the equestrian events displayed their wealth and power.³⁸ The equestrian events provided an opportunity for the Hellenistic dynasties to participate in a wholly Greek festival in a manner that befitted their rank, while at the same time continuing the equestrian traditions of the territories they ruled.

THE ROMAN WORLD

Chariot racing in the Roman world is synonymous with spectacle, the circus and the factions: *panem et circenses* – if you keep the mob fed and entertained all will be well. The history of chariot racing in Italy begins well before the era of the colours and the factions. Equestrian sports first appeared with the Greek colonists of *Magna Graecia* in the eighth century BCE, the descendants of whom continued to compete at the Panhellenic games with much success stamping evidence of this on their coinage and setting up dedicatory monuments in the Panhellenic sanctuaries. For horse racing centred specifically in the Italian peninsula we must look to the Etruscans, who announced their love of equine athletics by portraying images of the events on frescoes, pottery and terracotta reliefs.³⁹ In Etruria it was the mounted races that appeared first, with jockeys and their horses prancing into the artistic record by the seventh century BCE. Chariot teams do not appear until the sixth century BCE at which time they become a popular motif for the walls of Etruscan tombs.⁴⁰ Here again we see a deviation from the Greek world where the *tethrippon* appeared in competition much earlier than the *synoris*. The chariots in the *Tomba della Olimpiadi* depict a race between *bigae* (two-horse chariot, equivalent to the *synoris*). The style of the race appears to be similar to the Greek version – an out and back race around a turning post with no central barrier, suggesting that, much like the Greek races, these Etruscan competitions were not held on a permanent, specially built track, but rather in a suitable open area which had been prepared ahead of time.

Exactly when the tradition of chariot racing made its way to Rome is uncertain, but the Romans themselves credit the Etruscans with introducing it. Livy writes that Tarquin was responsible for

the initial planning of the Circus Maximus, having brought Etruscan racehorses to Rome as part of the celebrations for his victory over the Latins of Apiolae.⁴¹ The Roman tradition could likewise have had origins in southern Italy among the Greek cities of Magna Graecia. Tacitus states that the Romans imported horse racing from Thurii, while Athenaeus records that Greek-style games were held in some of these cities; in the case of Sybaris, the games were meant to rival or even out-do the Olympics.⁴² It is possible that early equestrian competitions in Rome followed a programme similar to those of the Greek games where chariot teams and ridden horses were owned and entered by wealthy individuals who competed for victory crowns as in the Panhellenic games or prizes, and the personal glory that came with success. Pliny writes:

For it was the custom of the citizens to go down in person to take part in the contests of the Circus, and to send their slaves and horses thither as well. Hence it is that we find it thus written in the laws of the Twelve Tables: 'If any person has gained a crown himself, or by his money, let the same be given him as the reward of his prowess.'⁴³

Pliny also records that crowns were first awarded to victors in the *ludi circenses* by Crassus Dives in the late second century BCE, and that these crowns were Etruscan in style.⁴⁴ The games never took hold the same way in Rome – wealthy Romans did not feel the need to enter teams of horses either for their enjoyment of the sport or as a display of wealth and power; instead they preferred to preside over lavish games which they financed from their own pockets as a way of garnering public thanks and (hopefully) votes – *panem et circenses*.

By the late third century BCE it is possible that the chariot teams competing in the *ludi circenses* at Rome were owned by private individuals or syndicates who hired them out to members of the Roman Senate for the games. Livy records how after the disaster at Cannae,

When the lack of funds was preventing the censors from contributing for the upkeep of sacred buildings, for the

provision of horses used in public processions, and for other things of the kind, numbers of men who were in the habit of accepting such contracts came in a body to the censors and urged them to carry on with the normal financial arrangement just as if there were funds in the treasury, and undertook that not one of them would seek payment until the war was over.⁴⁵

The 'other things' could very well refer to chariot races and other forms of entertainment, as *ludi* were a regular occurrence on the Roman calendar. Rawson also suggests that this reference to horses hired by the state might also allude to the existence of the team colours that later grew into the circus factions.⁴⁶ If Livy's passage is correct, it certainly does suggest that by 216 BCE chariot racing in Rome had become a professional endeavour, not a hobby for the rich.

By the time we get to the early imperial period it is clear that the horses of the circus belonged to private individuals – the *factionum* – who hired horses and drives to wealthy Romans responsible for hosting the public games. The *factionum* was first and foremost a businessman of the *equites* who bred horses and ran his training stables not for personal pleasure or prestige, but for profit.⁴⁷ This 'professionalization' of the circus led to the creation of the factions or colours, which subsequently led to an improvement in the standard of racing.⁴⁸ In time these factions came to encompass every aspect of the racing industry. Their staff consisted of highly trained specialists who ensured the smooth day-to-day running of the stables, all under control of the faction leader: the *dominus factionum*. Some of these *domini* were former drivers themselves and thus had an excellent working knowledge of the circus. One inscription from 275 CE names Polyphemus the Caesarean, a former charioteer, as *dominus* of his faction; a similar inscription exists for the African M. Aurelius Liber.⁴⁹

When a magistrate wanted to host the games, he met with the *domini* of the factions and entered into a contract with them for the provision of horses, drivers and chariots. As the monopoly these *domini* held over racing grew, their prices became increasingly more extortionate. When Nero increased the

number of prizes and races, the *domini* refused to hire their teams out for less than a day.⁵⁰ As a result of the ever-increasing popularity of the sport, the cost of hiring teams became so prohibitive that only those magistrates with imperial funding could afford to put on the games. One magistrate, Aulus Fabricius, outright refused to pay the prices charged by the *domini* and threatened to run dogs instead. The *domini* of the Reds and Whites gave in, but the Blues and Greens had to be bribed by the Emperor:

Thereupon the horsebreeders and charioteers, encouraged by this enthusiasm on his [Nero's] part, proceeded to treat both the praetors and consuls with great insolence; and Aulus Fabricius, when praetor, finding them unwilling to take part in the contests on reasonable terms, dispensed with their services and training dogs to draw chariots, introduced them in place of horses. At this, the wearers of the White and of the Red immediately entered their chariots for the race, but as the Greens and Blues would not participate even then, Nero himself furnished the prizes for the horses and the horse race took place.⁵¹

By the fourth century CE, control of the factions belonged to the emperor, as the circus and its chariots had become too powerful a tool to leave in the hands of others. This also gave the emperor control over whom was allowed to host the games, when and of what quality the races were to be. A law from 381 CE differentiates between horses provided by the emperor and those of the magistrates, and it further stipulates that successful racehorses were to remain in the service of the factions.⁵² Another law from 372 CE places a limit on the number of horses from the Phrygian herds that could be used for the Praetorian games.⁵³ In 371 CE a law was passed that stated no Spanish horses could be sold. This law was created after it was discovered that a *factionarius* had been selling horses from the Palmati and Hermogeni herds without imperial permission.⁵⁴

The Roman circus differed from the Greek hippodrome in that it was a permanent structure built to a specific canon. The Romans considered it imperative that each race was run fairly: the

organizers did not want to give the already excitable fans an excuse to riot by chancing any unfair advantage for a specific team or colour. The track itself was designed to allow each team to travel the same distance from start to finish, but as neither competitors nor spectators believed that each starting post was equal, a lot system was used to designate starting position. The circus, like the hippodrome, was long and narrow with a turning post at each end. An important innovation found in the circus was the *spina* – a long barrier running down the centre of the track that largely eliminated the risk of head-on collisions. Just as in horse racing today, the start was the most critical and dangerous part of the race as all the teams vied to be the first to reach the inside lane. To lessen the likelihood of accidents the starting gates were placed on an arc and each charioteer had to remain in his own marked out lane until he reached the near end of the *spina* at which point a break line indicated that the charioteers could begin to move from the respective lanes and vie for a position at the rail. The start gates involved the use of a complicated system to ensure that all the stalls opened simultaneously. When the emperor or presiding magistrate dropped the *mappa* to signal the start of the race, a single lever was pulled to activate the gates.⁵⁵

Some mosaics show mounted riders running alongside the chariots during a race, the *hortator*. One thought is that their task may have been to inform a specific driver as to what was happening with the chariots behind or in front of him. This is not an entirely impossible idea, although given the potential for chaos on the track, weaving in and out of the chariots would have been a difficult and risky task. These individuals may also have been mounted officials who, along with those stationed at various points around the track, were there to ensure that a clean race was run. It was not beyond the charioteers to instigate collisions by crowding their opponents or to hold their horses back if they had been bribed to do so (or deemed it wise to let a rival with a more powerful patron win).⁵⁶ Martial, himself a huge fan of the circus, quipped: 'The team of the Blues is lashed and lashed but doesn't run/ It's doing a big job, Catianus.'⁵⁷ It also appears that a race could be stopped and re-run if foul play or some sort of unfair advantage was suspected. Ovid writes:

We've backed a snail. Recall them, give the signal, good Romans! Wave your togas everywhere! Look, they're recalled. And now again the starting gates are open, all those bright colours galloping away.⁵⁸

A recall such as that described by Ovid must have been a rare occurrence. One can only imagine the chaos involved with stopping 12 galloping chariots and getting them back to the starting gate. The horses would be fired up and quite difficult to stop, and some of the charioteers – particularly those in front – would be thoroughly displeased about giving up their lead and starting again. An inscription for P. Aelius Gutta Calpurnius tells us that he won four victories that were deemed *remissus*, which seems to indicate that the race was re-run.⁵⁹ Another inscription for Scirtius of the Whites states that he won four races *revocatus*, which also implies a re-run. The *revocatus* terminology is most prevalent in inscriptions from the reign of Caligula, after which the term disappears and is replaced by *remissus*.⁶⁰ Scirtius' inscription provides a second piece of evidence for the presence of officials on the track – he lists one instance of *Iustitale*, which suggests that he won the race but was disqualified because of an objection by another team.⁶¹

Inscriptions likewise provide our best evidence for the types of races held in the circus. There were races for two-horse chariots run specifically for novice drivers – the *bigarius infans*.⁶² There were also races geared towards horses being run in their first event – the *equorum anagorum*. Along with the standard *biga* (two-horse) and *quadriga* (four-horse) races, there were also events for *trigae* (three-horse), *seiuges* (six-horse), *octuiges* (eight-horse) and *decimgues* (ten-horse) chariots. There was also a race in which there were two riders in the chariot, and upon crossing the finish line the second rider had to leap from the chariot and run a lap on foot, the *pedibus ad quadrigam* – a race reminiscent of the *kalpe* and *apobates* at the Greek games.⁶³

The inscription of C. Appuleius Diocles tells us a fair bit about racing tactics. He is recorded as having won *occupavit et vicit* – indicating that he held the lead from start to finish – 815 times; *succesit et vicit* – he came from behind to win – 67 times; *praemissus vicit* – this likely refers to his early career when his job was to set the

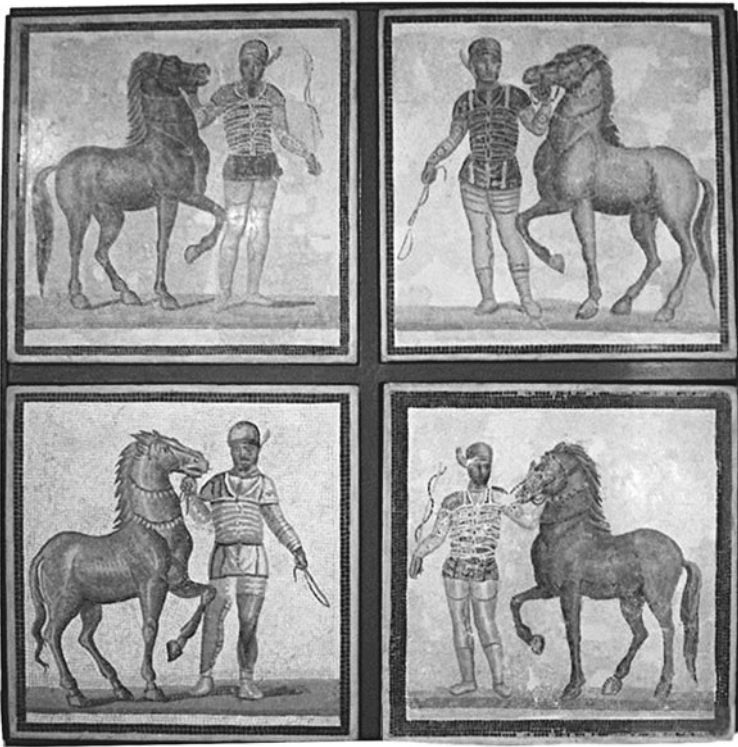


FIGURE 6.4 Charioteer mosaic with representatives from each racing colour. From the Villa of the Severans at Baccano, third century CE.

pace for a more experienced driver, but still won – 36 times; *eripuit et vicit* – this refers to victories snatched at the last minute by overtaking another team at the finish line – 502 times; and has 42 other unclassified victories.⁶⁴ Charioteer inscriptions like that of Diocles also tell us a great deal about the careers of the drivers, many of whom died at the height of their career: Crescens was only 22 when he died, having raced for the Blues for nine years.⁶⁵ Flavius Scorus won 2,048 races by the time of his death at the age of 27. He is mentioned in the inscription of Diocles,⁶⁶ as well as on two monuments of his own. The first consists only of his name and the names of his four horses, Pegasus, Elates, Andraemo and Cotynus.⁶⁷ The second is the tombstone of an imperial



FIGURE 6.5 Opous sectile mosaic of a Roman magistrate escorted by chariots of the four factions. From the Basilica of Junius Bassus, fourth century CE.

freedman,⁶⁸ on which a victorious charioteer is depicted, driving a *quadriga* and holding the victor's palm and a crown. This freedman, Abscantus, was probably either a patron of Scorpis, or the figure of Scorpis might represent the passion Abscantus had for chariot racing.⁶⁹ Scorpis himself appears in five of Martials poems, two of which mourn his young death:

I am Scorpis, the glory of the clamorous circus, your applause, Rome, and brief darling. Envious Lachesis snatched me away ere my thirtieth year, but, counting my victories, believed me an old man.⁷⁰

Some died young while still considered apprentices. One rather poignant epitaph depicts a young boy falling from a *biga* and is inscribed: 'Here I am, Florus, a child driver, falling; while I was trying to put on speed, I plunged into the shades of Lethe.' Januarius erected this to his beloved pupil.⁷¹ Other charioteers enjoyed long and successful careers, becoming some of the most famous celebrities of their day. Diocles' inscription is the most

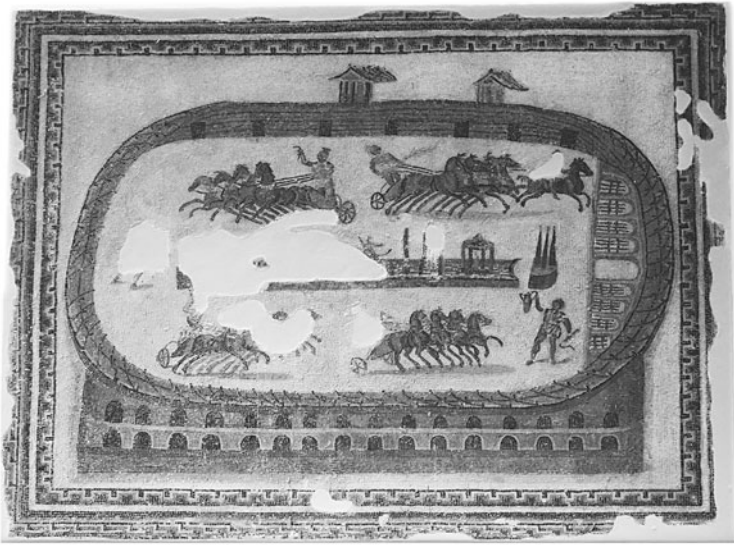


FIGURE 6.6 Circus mosaic from the Hill of the Odeon, Carthage. The four factions compete in a *quadriga* race. Also present are the mounted *horator* and a *sparsor* on foot holding a whip and amphora. Early third century CE.

extensive. He came from Lusitania and raced for 24 years during the second century CE. He began his career with the Whites in 122, winning his first victory for them in 124; he was transferred to the Greens in 128 and then to the Reds in 131, for whom he raced for the next 15 years. During his career he started in 4,257 *quadriga* races and placed 2,900 times: 1,462 firsts, 861 seconds, 576 thirds and one fourth. 32 of his victories had a purse of 30,000 *sesterces*, 28 were worth 40,000 *sesterces*, 29 were at 50,000 *sesterces* and three had a prize of 60,000 *sesterces*. By the end of his career, Diocles had won a total of 35,863,120 *sesterces*.⁷² Diocles goes on to dedicate a section of his inscription to his horses, specifically to Pompeianus whom he drove to 152 victories. Diocles further boasts that he was the best driver of African horses. The inscription of P. Aelius Gutta Calpurnius likewise records an extensive career in the circus during which Calpurnius drove for all four teams. Amongst his many victories are 61 in the *pedibus ad quadrigam*, indicating that this must have been a



FIGURE 6.5 Opous sectile mosaic of a Roman magistrate escorted by chariots of the four factions. From the Basilica of Junius Bassus, fourth century CE.

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CONCLUSION

RIDING INTO HISTORY

The importance of the horse in human history is an undisputed fact. Without the domesticated horse, progress and the evolution of cultures and civilizations would have been a very different process. The utility of equines to society is clear by the way in which the horse managed to entrench himself into the daily life of any new culture he was introduced to. Moreover, the horse proved his value by making himself indispensable to warfare, transportation, and entertainment. Even in the modern world the now non-practical horse has firmly established himself as an elite athlete, companion and pet.

Thanks to the importance of the horse to the cultures of the ancient world, we are able to access a wide variety of source material relating directly or indirectly to the equines of antiquity. These sources can be something as equine-specific as Xenophon's *Art of Horsemanship* or the tongue-in-cheek description of horse-mad youth in Aristophanes' *Clouds*. The role of the horse as a status symbol is made clear by its frequent appearance in the art of the ancient world. The most unique source available to us is the horse itself. *Equus caballus*, our domestic horse, has changed very little since domestication. By this I mean that the basic conformation, nutritional requirements and behaviour of a twenty-first century horse are similar to that of his ancient ancestors. This is particularly true in the regions studied in this book: Central Asia, the Near East and the Mediterranean. In these places there has been little to no 'foreign' breeding influences; no attempts to 'improve' local

equines. These native horses are an excellent living source for understanding their ancient counterparts. This also allows us to use experimental archaeology to gain as much hands-on knowledge as possible.

The purpose of this book was not only to establish a firm typology for the horses of antiquity, but also by looking at environmental and human conditions to further determine why these types developed. It is clear that during the period covered in this research environmental factors had a much greater impact on type development than human influences. The natural adaptation of *Equus* is apparent from the earliest stages of equine evolution. The tiny, solitary, forest-dwelling *Hyra-cotherium* continually evolved to thrive in changing ecosystems before finally emerging as a herd-based, plains-dwelling *Equus*. *Equus* existed in a wild state across much of Eurasia, but his physical appearance varied based on where in the Eurasian world he lived. These prehistoric wild equines are called the Ancestral horses and physically were the result of environmental natural conditions. Existing native horse and pony types are considered to be direct descendants of these Ancestral horses. This does not mean that they are identical to their prehistoric relatives, rather that they follow the same strain and appearance as the Ancestral types.

Even after equines were domesticated environmental factors continued to strongly influence equine type. Humans exerted little control over the size and shape of their horses. Overspecialization did not exist. Rather than attempting to manipulate equine breeding and genetics to create a new 'breed' or a specific 'line' capable of excelling at one particular task, the horsemen of antiquity took the opposite approach; they allowed form to dictate function. In other words, they took the horse created by non-human factors such as environmental conditions and suited use to that. The only authority ancient horsemen applied to type development was the castration of male horses deemed unsuitable for breeding stock or the placing of a particular stallion with a group of in-season mares. It is important to note, however, that these forms of selective breeding were used to bring out the best physical and temperamental qualities within the native type. They were not cross-breeding between types or importing foreign blood.

Thus, these horse breeders were concerned with producing the ideal native horse, not trying to create something completely new.

This is very different from modern horse breeding practices. The main difference between horse husbandry in the ancient world and today is the way in which we approach the horse and his uses. In the modern world horse breeding has become increasingly specialized. This is because the horse no longer has to perform a variety of jobs, but instead is intended for a specific 'career'. On account of this breeders tend to focus more and more on trying to breed for very particular traits. This is a hit-and-miss notion: breeding two top class show jumpers does not necessarily produce an offspring with any talent over fences; likewise, a Triple Crown winner like Secretariat is not guaranteed to pass on his extraordinary abilities to his progeny. This over-specialized approach to breeding is expensive and risky, while the potential of producing a truly top-class animal is slim.

Thus, equine use in antiquity was dictated by natural form: conformation. Conformation is the basis for everything we do with a horse. It dictates the animal's capabilities and limitations. Any attempt to force the equine body to do something for which it is not designed is to court disaster. The equine body is a complex structure: when everything is balanced and in alignment, the horse can withstand endless hours of wear and tear on his body; but as soon as something is out of place, the entire system can collapse. The longevity of a horse's working career depends on his basic conformation, suiting task to form as well as proper care and management. If the animal is made to do something his body cannot handle, or placed in a management programme for which he is not designed, he will fall apart. On account of all this, the horses of antiquity were not manipulated by a human need to create something new. Instead, the horsemen of the ancient world made do with the horses created by the environment they lived in. They developed their use of the horse to suit horse type. This is especially apparent with regards to the ancient military horse.

What comes out of all this is the following: in the ancient world, direct human impact on the development of horse types was minimal. Environmental factors played a much greater role in the 'evolution' of domestic horse types. The most significant reasons for this are the following:

1. Humans had no need to change what the environment had created in native horse types. For example, why would a Greek cavalryman want to muddle with his native Greek horses – prior to Alexander the Great, most battles involving Greek cavalrymen were fought in the Greek peninsula. When Athens sent cavalrymen to Sicily during the Peloponnesian war, they were expected to procure horses once they had arrived on the island, not to bring mounts from home.
2. Nutrition: horses only had access to their native fodder and, the Nesaean horse aside, this was not sufficient to produce a bigger horse.
3. Husbandry: the way a horse is kept – in a stable, field, out on the steppe – has a big impact on its type. A horse left to fend for itself out of necessity remains small and hardy; a horse spoilt by human care may become larger but also more delicate.

For these reasons I think we must continue to re-evaluate our ideas about the horses of the ancient world. It is necessary to view each type as a product of its native environment, and further, to recognize that it was the physical form of a type that dictated its function, not the other way around.

NOTES

INTRODUCTION HORSES AND HUMANS

1. S. Budiansky, *The Nature of Horses* (New York, 1997) 9–38.
2. Notwithstanding the fact that in many parts of the world equids still provide a more practical source of transportation than vehicles.
3. The beaten/submissive/worn-out horse appears in Roman literature as a *topos* for the human condition. For example, Juvenal writes:

Tell me, o scion of Trojans, what's the first characteristic of a thoroughbred? Speed and strength. The horse we most admire is the one who romps home a winner, cheered on by the frenzied roars of the crowd. Good breeding doesn't depend on fancy pasturage; the thoroughbred earns his title by getting ahead of the field, by making them eat his dust. But if he's seldom victorious, the auction-ring will claim him, though his pedigree may be starred with every legendary name from the stud-book ... Sold off at knock-down prices, constantly changing hands, these slow and plodding descendents of noble bloodstock will end up turning a mill wheel, neck-galled from the collar, fit for no other work.

Juvenal, *Satires* 8.56–68.

4. *Hippomania*, 'Mad love for horses', as translated in H.G. Liddell and R. Scott, *A Greek-English Lexicon* (Oxford, 1901).
5. *The Greek Anthology Volume II*, trans. W.R. Paton (Cambridge, 1917) 208.
6. *Book of Job*, 39.20–22.

CHAPTER 1 METHODOLOGY

1. As the framework for my methodology, I am using two excellent articles by M. MacKinnon on pigs and cattle in Roman Italy.

- MacKinnon combines artistic representations, textual evidence and zoological data to study Italian pig and cattle types: M. Mackinnon, 'Cattle "Breed" Variation and Improvement in Roman Italy: Connecting the Zoological and Ancient Textual Evidence' *World Archaeology* 42.1 (2010) 53–71 and 'High on the Hog: Linking Zooarchaeological, Literary and Artistic Data for Pig Breeds in Roman Italy' *American Journal of Archaeology* 105 (2001) 649–73.
2. A 'hand' is the standard unit of measurement for equines. 1 hand = 4 inches. The animal is measured from the ground to their withers.
 3. As an example of how our perceptions of equine size have changed in the last few generations we can use the Dutch Warmblood stallion Hickstead, who passed away in 2011. Hickstead is considered one of the most successful show jumpers in the history of the sport, with a record that includes Olympic gold and silver medals from Beijing. Read any article about Hickstead and one of the first things you will read is reference to his diminutive height: he stood approximately 16hh. Among the European warmbloods that dominate the Olympic disciplines, 16hh is indeed small. Conversely, among the horses of the pre-modern world, a 16hh horse would have been a rare specimen and considered exceptionally large and tall.
 4. Examples include the Mustang and Assateague horses in the United States and the Sable Island horses in Canada.
 5. E.H. Edwards, *The Encyclopedia of the Horse, The Definitive Guide to the Horse: The Major Breeds of the World, their History and Modern Use* (Markham, 1994) 86 and 389.
 6. Herodotus, *Histories*, 7.40.
 7. Arrian, *Campaigns of Alexander*, 5.11.
 8. Euripides, *Hippolytus*, 1216–29.
 9. Livy, *Histories*, 35.11.
 10. Mangas is a Berber gelding. He was, however, gelded after he reached maturity and thus displays many of the physical features found in a stallion. This photo was taken in January 2007 and Mangas has a heavy winter coat.
 11. J. Kroll, 'An Archive of the Athenian Cavalry' *Hesperia* 46.2 (1977) 83–140.
 12. Aristotle, *The Athenian Constitution*, 49.1–2.
 13. G. Bugh, 'Cavalry Inscriptions from the Athenian Agora' *Hesperia* 67.1 (1988) 81–90. The *katastasis* was a loan from the state to help with the purchase of a horse; it had to be repaid before the cavalryman could retire. The *sitos* was a monthly grain allowance provided by the state to help with the cost of feeding a cavalry mount.

14. For example CIL, VI 10047 and 10053 record the names of victorious horses as well as their place of origin. The majority of successful horses are listed as African, but they are also listed as coming from Spain, Mauritania, Laconia, Cyrene, Gaul, Thessaly and Aetolia.
15. C.J. Johnstone, *A Biometric Study of Equids in the Roman World* (York, 2004).
16. A. Azzaroli, *An Early History of Horsemanship* (Leiden, 1985).
17. S. Bökönyi, *Data on Iron Age Horses of Central and Eastern Europe* (Cambridge, 1968) 3.
18. M. Rostovtzeff, *Iranians and Greeks in South Russia* (New York, 1969); E.H. Minns, *Scythians and Greeks* (New York, 1971). See also J. Davis-Kimball et al (eds), *Nomads of the Eurasian Steppes in the Early Iron Age* (Berkeley, 1995).
19. See S.I. Rudenko, *Frozen Tombs of Siberia: The Pazyryk Burials of Iron Age Horsemen* (Berkeley, 1970).
20. Xenophon, *Art of Horsemanship*, 7.18.

CHAPTER 2 THE HORSE

1. Ungulate refers to all hoofed mammals. Ungulates are further divided into odd or even-toed; as the horse is an odd-toed ungulate, he is part of the division of Perissodactyla.
2. For a detailed scientific study of equine evolution see J.L. Franzen, *The Rise of Horses: 55 Million Years of Evolution* (Boston, 2010); B.J. MacFaddon, *Fossil Horses: Systematics, Paleobiology and Evolution of the Family Equidae* (Cambridge, 1999).
3. For example, I was riding my mare in the indoor ring – a place she has been in many times, but on this particular day a storm was blowing and one of the doors that was usually closed happened to be open. The wind blowing through the door caused the dressage letters on the arena walls to flutter, and this was cause enough for her to try and run each time we came to that corner of the arena.
4. Plutarch, *Alexander*, 6.
5. One particular anecdote from Hustai National Park in Mongolia provides an excellent example of the importance of the herd to a horse. One of the Przewalski stallions in the park lost his harem band. His response to this loss was to create his own ‘bachelor’ herd by abducting the park’s domestic riding geldings. Needless to say, the park rangers had a difficult time getting their geldings back! Foundation for the Preservation and Protection of the Przewalski Horse, *The Przewalski Horse Newsletter* (January, 2006) 2.

6. When local Mongolian herdsmen began trying to catch Przewalski foals for European collectors, they almost always had to kill the stallion before getting anywhere near the herd: E. Mohr, *The Asiatic Wild Horse* (London, 1971) 68.
7. For a detailed examination of equine communication see M. Kiley-Worthington, *Horse Watch: What it is to be Equine* (London, 2005) 276–314.
8. Oppian, *On Hunting*, 1.166–72.
9. Strabo, *Geography*, 8.8.1.
10. J.M. Camp, *Horses and Horsemanship in the Athenian Agora* (Athens, 1998) 31–8; R. Gaebel, *Cavalry Operations in the Ancient World* (Norman, 2002) 20.
11. From: J.H. Kroll, 'An Archive of the Athenian Cavalry' *Hesperia* 46.2 (1977) 87–8.
12. See S. Hemingway, *The Horse and Jockey from Artemision* (Berkeley, 2004) 101–3.
13. Strabo, *Geography*, 5.1.9.
14. M.H. Hayes, *The Points of the Horse* (London, 1897) 1.
15. G. Heuschmann, *Tug of War: Classical versus 'Modern' Dressage* (London, 2007) 109.
16. Xenophon, *Art of Horsemanship*, 1.2, trans. M.H. Morgan.
17. D. Bennett, *Principles of Conformation Analysis Volume III* (Gaithersburg, 1991) 44.
18. *Ibid.*
19. Equine Research Group, *Equine Genetics and Selection Procedure* (Dallas, 1978) 10.
20. *Ibid.*, 102 and R. Oliver, *A Photographic Guide to Horse Conformation* (London, 1991) 55.
21. Bennett (1991) 15; W. Jones, *Genetics and Horse Breeding* (Philadelphia, 1982) 401.
22. Bennett (1991) 15; A. Hyland, *The Horse in the Ancient World* (Westport, 2003) 35.
23. Equine Research Group (1978) 101.
24. R. Van Nassau, *Hoof Problems* (Shrewsbury, 2007) 30–2.
25. Hyland (2003) 33–4.
26. A. Hyland, *Equus: The Horse in the Roman World* (London, 1990) 10.
27. Thucydides, *The Peloponnesian War*, 7.27. For another instance of cavalry horses being lamed from work see Diodorus, *Library of History*, 17.94.2 in reference to the horses of Alexander the Great wearing down their feet after years of continual marching. Xenophon, *Anabasis*, 3.4.49 recounts an incident where the cavalrymen had to dismount to save their horses hooves and legs on very rocky terrain. See also Spence (1995) 40–2.

28. Xenophon, *The Expedition of Cyrus*, 4.5.35. When advancing through Armenia. This was presumably meant to create a larger surface area to disperse the weight of the animal; it must have served the same function as a snowshoe.
29. W.H. Carter, *Horses, Saddles, and Bridles* (Boston, 1906) 40.
30. Hayes (1897) 201.
31. *Ibid.*, 5–7.
32. S. Budiansky, *The Nature of Horses: Exploring Equine Evolution, Intelligence and Behavior* (New York, 1997) 177–85.
33. Hayes (1897) 6–7.
34. D. Bennett, 'A Sense of Proportion' *Equus* 388 (2010) 48.
35. *Ibid.*
36. *Ibid.*
37. Oliver (1991) 50.
38. Hayes (1897) 197.
39. Jones (1982) 379–403.
40. Oliver (1991) 50.
41. Xenophon, *Art of Horsemanship*, 1.5.
42. Hyland (2003) 34.
43. Hayes (1897) 196.
44. Equine Research Group (1978) 96.
45. J. Winkel, 'Conformation Clinic' *Practical Horseman* (April 2010) 32.
46. Carter (1906) 8–17.
47. A. DeCarpentry, *Academic Equitation* (London, 2012) 28.
48. S. McBane, *The Competition Horse* (London, 1991) 49.
49. Hayes (1897) 179–88.
50. Equine Research Group (1978) 98.
51. McBane (1991) 50.
52. Oliver (1991) 68–71.
53. Equine Research Group (1978) 90.
54. Hayes (1897) 191.
55. This refers to a horse who moves with very little elevation in his gait—his hooves barely clear the ground; this increases the risk of tripping or stumbling. Bennett (1991) 68–70.
56. Heuschmann (2007) 48.
57. D. Bennett, *Principles of Conformation Analysis Volume I* (Gaithersburg, 1988) 17–18.
58. Oliver (1991) 25–9.
59. Hayes (1897) 172–3.
60. Equine Research Group (1978) 93.
61. Heuschmann (2007) 55–8.
62. Columella, *On Agriculture*, 6.29.2; Oppian, *On Hunting*, 1.185–6; Varro, *On Agriculture*, 2.7.5; Virgil, *Georgics*, 3.80; Xenophon, *Art of Horsemanship*, 1.11.

63. Bennett (1991) 5.
64. Oliver (1991) 36.
65. H.S. Thomas, *The Horse Conformation Handbook* (North Adams, 2005) 88.
66. *Ibid.*, 142–4.
67. S.E. Harris, *Horse Gaits, Balance and Movement* (Hoboken, 1993) 119.
68. Bennett (1991) 6.
69. Oliver (1991) 36–41.
70. Harris (1993) 123.
71. D. Bennett, *Principles of Conformation Analysis, Volume II* (Gaithersburg, 1989) 35.
72. Oliver (1991) 74.
73. Harris (1993) 116.
74. R.H. Smythe, *Horse Structure and Movement* (London, 1967) 106.
75. Thomas (2005) 38.
76. Thomas (2005) 38–9.
77. Bennett (1991) 70.
78. Thomas (2005) 41.
79. Thomas (2005) 28–9.
80. Oliver (1991) 78.
81. Bennett (1991) 72–3; Thomas (2005) 30–1.
82. Bennett (1991) 78–9; Oliver (1991) 89; Thomas (2005) 31–2.
83. Oliver (1991) 86; Thomas (North Adams, 1996) 36.
84. A.J. Spalinger, *War in Ancient Egypt* (Oxford, 2005) 10.
85. Oliver (1991) 93.

CHAPTER 3 PREHISTORIC HORSES

1. J. Clutton-Brock, *Horsepower: A History of the Horse and Donkey in Human Societies* (Cambridge, 1992) 59.
2. P.G. Gonzaga, *A History of the Horse, Volume I: The Iberian Horse from the Ice Age to Antiquity* (London, 2004) 24; A. Sanson, 'Nouvelle détermination des espèces chevalines du gene Equus' *Comptes-Rendus* 69 (Dec 1869) 1204–7.
3. C.A. Pietrement, *Les Chevaux dans les temps préhistoriques et historiques* (Paris, 1883) 11.
4. *Ibid.*, 13–14.
5. *Ibid.*, 13.
6. The designation of a heavy horse in the prehistoric world should not be confused with our modern term for draft horses. It refers to a stocky, robust animal much like the Welsh Cob type.

7. D.M. Goodall, *A History of Horse Breeding* (London, 1977) 36–42.
8. Ibid., 36–42.
9. Ibid., 77.
10. J.K. Anderson, *Ancient Greek Horsemanship* (Berkeley, 1961) 1.
11. The chestnut is a soft horny growth on the inside of the legs just above the knee on the foreleg and just below the hock on the hind leg. The exact purpose of the chestnut is unclear.
12. W. Ridgeway, *The Origin and Breeding of the Thoroughbred Horse* (Cambridge, 1905) 16–18.
13. Ibid., 18.
14. Ibid., 26.
15. Ibid., 30–1.
16. Ibid., 34–5.
17. M. Dossenbach and H. Dossenbach, *The Noble Horse* (Boston, 1983) 30–1.
18. Gonzaga (2004) 26–8.
19. Ibid., 29–30.
20. Ibid., 30–1.
21. Ibid., 31–2.
22. B. Hendricks, *The International Encyclopedia of Horse Breeds* (Norman, 1995) 179–82.
23. F. Lynghaug, *The Official Horse Breeds Standards Guide: The Complete Guide to the Standards of all North American Horse Breed Associations* (Minneapolis, 2009) 470.
24. Hendricks (1995) 180.
25. Ibid.; M. Harbury, *Last of the Wild Horses* (Toronto, 1994) 83.
26. S. Olsen, 'Horse Hunters of the Ice Age' in S. Olsen (ed.), *Horses Through Time* (Lanham, 1996) 38–9.
27. J. Speed and M. Speed, *The Exmoor Pony: Its Origins and Characteristics* (Colonsay, 1977) 1.
28. S. Baker, *The Exmoor Pony, Survival of the Fittest: A Natural History* (Somerset, 1993) 32.
29. Ibid., 19.
30. Ibid., 20.
31. A.A. Dent and D.M. Goodall, *The Foals of Epona: A History of British Ponies from the Bronze Age to Yesterday* (London, 1962) 25.
32. Speed and Speed (1977) 3.
33. Baker (1993) 33.
34. Ibid.
35. In other areas we are lucky enough to have entire horses survive thanks to the fact that they were found in permafrost regions.
36. Ibid., 35.
37. Ibid.

38. Ibid., 38.
39. Ibid.
40. Ibid., 41.
41. Speed and Speed (1977) 22.
42. Baker (1993) 43.
43. Ibid.
44. Ibid., 47.
45. Lynghaug (2009) 473–4. Uniformity in colour and a lack of white markings is a common feature of ‘primitive’ horse breeds like the Exmoor, Przewalski and the Norwegian Fjord.
46. Ibid., 474.
47. Ibid.
48. Speed and Speed (1977) 9–11.
49. Lynghaug (2009) 473.
50. J. Hermesen, *The Horse Encyclopedia* (Toronto, 1998) 28.
51. Hendricks (1995) 182.
52. S. Baker et al, *The Exmoor Pony* (Somerset, 2000) 41–2.
53. Speed and Speed (1977) 34.
54. Hendricks (1995) 180–1.
55. Przewalski can also be spelled Prjevalsky. The Przewalski horse is also commonly called the Asian Wild horse, Mongolian Wild horse and the Takhi.
56. Harbury (1994) 56.
57. J. Clutton-Brock, *Horsepower: A History of the Horse and Donkey in Human Societies* (Cambridge, 1992) 31–2.
58. Ibid., 32.
59. E. Mohr, *The Asiatic Wild Horse: ‘Equus przewalskii Poliakoff’* (London, 1971) 20.
60. Clutton-Brock (1992) 32. Ewart was a strong supporter of the idea of telegony in horse breeding.
61. Ibid.
62. Mohr (1971) 9–10.
63. S. Bökönyi, *The Prjevalsky Horse* (London, 1974) 46.
64. Ibid., 70 and Gonzaga (2004) 37.
65. Herodotus, *Histories*, 4.52: ‘The third river, the Hypanis, has its source in Scythia, in another great lake, round the borders of which wild white horses graze’.
66. Bökönyi (1974) 70.
67. Ridgeway (1905) 31–2.
68. Clutton-Brock (1992) 28.
69. E.H. Edwards, *The Encyclopedia of the Horse, The Definitive Guide to the Horse: The Major Breeds of the World, their History and Modern Use* (Markham, 1994) 18–19.
70. Gonzaga (2004) 38.

71. Harbury (1994) 57.
72. Hendricks (1995) 351–2.
73. C. Groves, *Horses, Asses and Zebra in the Wild* (Hollywood, 1974) 55.
74. All true surviving wild equids have an upright mane.
75. Mohr (1971) 9–26.
76. *Ibid.*, 41–5.
77. Bökönyi (1974) 46–53.
78. Mohr (1971) 57–62.
79. J.V. Dohner, *Encyclopedia of Historic and Endangered Livestock and Poultry Breeds* (New Haven, 2002) 327.
80. Marco Polo, *The Travels*, 46–7.
81. Hendricks (1995) 8–9.
82. Dohner (2002) 328.
83. C. Shirliyev, *The Divine Akhalteke Horse* (Ashgabat, 2003) 71.
84. Lynghaug (2009) 137.
85. J.M. Wilks, ‘The Persianization of Köroglu “Destan”’ *Asian Folklore Studies* 60.2 (2001) 307.
86. *Ibid.*, 310; N. Chadwick and V. Zhirmunsky, *Oral Epics of Central Asia* (Cambridge, 1969) 301. The horse is not an accessory to Gorgoli alone; the heroes of Central Asian epics are regularly partnered with an extraordinary horse as their companion in adventure. Chadwick and Zhirmunsky (1969) 38, 40, 48, 58, 72, 73, 85, 103, 115, 119, 122, 136, 185, 313.
87. A. Vambéry, *Travels in Central Asia* (New York, 1865) 367.
88. A. Golsham, *Introduction to the Turkmen Horse in Iran* (Tehran, 2005) 55–6.
89. *Ibid.*, 28.
90. Hendricks (1995) 8.
91. Shirliyev (2003) 77.
92. Hendricks (1995) 424–7.
93. Lynghaug (2009) 141.
94. Hendricks (1995) 9. Some of the Pazyryk horses display this metallic sheen on their coats.
95. This is quite different from North American Thoroughbred flat racing where the longest race is the Belmont Stakes, the final race in the Triple Crown, which is 1.5 miles.
96. Edwards (1994) 75.
97. Lynghaug (2009) 138.
98. Shirliyev (2003) 141–67 for the 1935 Ashgabat–Moscow race which covered 4,300km in 84 days; 171–219 for the 1988 race which covered 3,200km in 63 days.
99. Lynghaug (2009) 138.
100. U. Morgenroth, *Southern Iberia in the Early Iron Age*, BAR International Series 1330 (Oxford, 2004) 5–6.

101. Varro, *On Agriculture*, 2.1.19.
102. Strabo, *Geography*, 3.4.15.
103. V. Warmuth et al, 'European Domestic Horses originated in Two Holocene Refugia', *PLoS ONE* 6.3 (2011) 1–6. See also J. Lira et al, 'Ancient DNA reveals traces of Iberian Neolithic and Bronze Age lineages in modern Iberian Horses' *Molecular Ecology* 19 (2010) 64–78.
104. Pliny the Elder, *Natural History*, 8.67.166.
105. Martial, *Epigrams*, 1.14.199.
106. Strabo, *Geography*, 3.4.15.
107. S. Loch, *The Royal Horse of Europe* (London, 1986) 20.
108. Hendricks (1995) 50–1.
109. Gonzaga (2004) 40–6; Hendricks (1995) 384–5; Loch (1986) 21–2.
110. For notes on the Caspian's 'rediscovery' see L. Firouz, *The Caspian Miniature Horse of Iran* (Private, 1972).
111. Edwards (1994) 36.
112. B. Dalton, *The Caspian Horse* (London, 2000) 20.
113. Hendricks (1995) 113; Lynghaug (2009) 443–4.
114. O.M. Dalton, *The Treasure of the Oxus* (London, 1964) xxxvii–xlii, Plate 7.
115. A. Ashfar and J. Lerner, 'The Horses of the Ancient Persian Empire at Persepolis', *Antiquity* 53 (1979) 44–6.
116. M.A. Littauer and J. Crouwel, *Wheeled Vehicles and Ridden Animals in the Ancient Near East* (Leiden, 1979) Fig. 81.
117. P. Albenda, 'Horses of Different Breeds: Observations in Assyrian Art' in C. Nicolle (ed.), *Nomades et Sédentaires dans le Proche-Orient Ancien: Compte Rendu de la XLVI Rencontre Assyriologique Internationale* (Paris, 2004) 324.

CHAPTER 4 THE ANCIENT HORSE TYPES

1. Anna mentions 'Scyths' several times in the *Alexiad*. At 1.5 we read of 'Scythian allies equipped with barbarian weapons' in the army of Bryennius who were to 'fall upon the rear as soon as the enemy appeared and the trumpet sounded the charge; they were to shoot at them and harass them ceaselessly with showers of arrows'.
2. R.M. Batty, 'On Getic and Sarmatian Shores: Ovid's Account of the Danube Lands' *Historia* 43.1 (1994) 93.
3. Y. Bregel, *An Historical Atlas of Central Asia* (Leiden, 2003) 2.
4. V.W. Masson, 'The Environment' in Dani and Masson (eds), *History of Civilizations of Central Asia Volume I: The Dawn of Civilizations—earliest times to 700 BC* (Delhi, 1992) 41–2.
5. R. Lewis, *Geographic Perspectives on Soviet Central Asia* (Florence, 1992) 74–5.

6. Masson (1992) 35.
7. Here Turkestan refers to Central Asia. R. Grousset, *The Empire of the Steppes: A History of Central Asia* (New Jersey, 1970) xxi.
8. The highest peak in the Pamirs measures 7,495 m tall.
9. Lewis (1992) 77–9.
10. *Ibid.*, 80.
11. Y. Bregel, *An Historical Atlas of Central Asia* (Leiden, 2003) 2.
12. Masson (1992) 32.
13. *Ibid.*
14. *Ibid.*, 38–9.
15. Herodotus, *Histories*, 4.28.
16. Virgil, *Georgics*, 3.352–6.
17. *Ibid.*, 3.363–70.
18. H.B. Evans, 'Winter and Warfare in Ovid's Tomis ("Tristia" 3:10)', *Classical Journal* 70.3 (1975) 1.
19. Ovid, *Tristia*, 3.10.
20. Ovid, *Epistulae ex Ponto*, 1.2.
21. Herodotus, *Histories*, 4.18.
22. R.W. Wendleken, 'Horses and Gold: the Scythians of the Eurasian Steppes' in Bell-Fialkoff (ed.), *The Role of Migration in the History of the Eurasian Steppe: Sedentary Civilization vs. 'Barbarian' and Nomad* (New York, 2000) 193.
23. Strabo, *Geography*, 7.4.6.
24. *Ibid.*, 7.3.7.
25. *Ibid.*, 7.4.8.
26. There are still many places that are resistant to the practice of gelding today – either on account of cultural influences or due to the lack of trained veterinarians in the area. One such place is Egypt – even many tourist horses in the area around the pyramids are kept as stallions. M. Phillips recounts a story of her mother's travels to Iran in the 1960s 'where she rode an ebony stallion across the mountains. She persuaded her reluctant cameraman to get on another one, but she failed with her father. He ... insisted that he would only ride a nice, safe gelding which caused some worried head scratching – there was scarcely such an animal in Iran, and that one that was eventually found for him was understandably depressed'. M. Phillips, *Horseshoes and Holy Water: On the Hoof from Canterbury to Santiago de Compostela* (London, 2005) 80.
27. S.I. Rudenko, *The Frozen Tombs of Siberia: The Pazyryk Burials of Iron Age Horsemen* (Berkeley, 1970) 118–19.
28. This continues to be the style of horse husbandry used in Central Asia today as I witnessed in Mongolia in 2008. The stallions are used only for breeding and in the annual Nadam horse races; mares are likewise used primarily for breeding and milk

- production. It is the geldings who act as the all around work horses – used for herding, travel and any other necessity.
29. Aeschylus, *Prometheus Bound*, 708–10; Herodotus, *Histories*, 4.46; Strabo, *Geography*, 7.3.17.
 30. Strabo, *Geography*, 7.3.17.
 31. Hippocrates, *Airs, Waters, Places*, 18.9–16.
 32. E.C. Bunker et al (eds), *Ancient Bronzes of the Eastern Eurasian Steppe from the Arthur M. Sackler Collections* (New York, 1997) 275.
 33. Rudenko (1970) 63.
 34. Arrian, *On Hunting*, 23.2–4.
 35. T. Sternberg, 'Unraveling Mongolia's Extreme Winter Disaster of 2010' *Nomadic Peoples* 14.1 (2010) 74.
 36. *Ibid.*, 75.
 37. While I was in Mongolia from June to July 2008, I became accustomed to the sight of horse carcasses scattered across the grasslands.
 38. Ammianus Marcellinus, *Histories*, 31.2.6. While they do not necessarily sleep on their horses any more, the horsemen of the steppe are still perfectly comfortable with multi-tasking as their horses gallop across the steppe. The nomads I rode with in Mongolia thought nothing of smoking a cigarette and texting on their mobile phones at the gallop.
 39. Strabo, *Geography*, 7.4.8.
 40. The Mongolians I met found it difficult to understand that someone might not know how to ride a horse. Many tourists expecting North American style trail rides where horses obediently follow each other down a path were quite surprised when they were put on half-broke Mongolian horses instead. The Mongolians could not figure out why these tourists kept falling off horses a young child was capable of riding.
 41. J. Zarins, 'The Domesticated Equidae of Third Millennium BC Mesopotamia', *Journal of Cuneiform Studies* (1978) 4. The proliferation of equines in Near Eastern art following their introduction to the region is noted by M. Cool-Root, 'Animals of Ancient Iran', 204–6 and A. Caubet, 'Animals in Syro-Palestinian Art', 215–20 both in B.J. Collins (ed.), *A History of the Animal World in the Ancient Near East* (Leiden, 2002).
 42. E.I. Gordon, 'Sumerian Animal Proverbs and Fables: Collection Five', *Journal of Cuneiform Studies* 18–19.
 43. A. Hyland, *The Horse in the Ancient World* (Westport, 2003) 9.
 44. J.H. Breasted, *Ancient Records of Egypt Volume IV* (Chicago, 1906) 850.
 45. *Ibid.*, 877. See also *Ibid.*, 853. Of all the Pharaohs, the Nubian 23rd Dynasty seems to have had the closest affinity with horses. The above-mentioned Piankhi founded a horse cult during his

- reign. The only royal burials to include horses are the tombs of this dynasty at Kurru near the fourth cataract of the Nile. These tombs contained the remains of 16 horses buried upright and facing south and are 'the only ritual burials of horses in Egypt prior to the Christian era'. A. Azzaroli, *An Early History of Horsemanship* (Leiden, 1985) 50; cf. A. Nibbi, 'Some Remarks on Ass and Horse in Ancient Egypt and the Absence of the Mule' *Zeitschrift für Ägyptische Sprache und Altertumskunde* 106 (1979) 162.
46. *Ancient Records of Egypt Volume III*, 337, 347, 361. Rameses credits his victories at Kadesh to his two horses and his shield bearer. In his record of the battle, Rameses notes that his two horses were the only members of his army that did not contemplate abandoning him when the fighting became difficult. In thanks, he states that he will feed the two animals himself every day from then on out. R. Chadwick, *First Civilizations: Ancient Mesopotamia and Ancient Egypt* (London, 2005) 198.
 47. See for example, EA 1, 2, 3, 5, 6, 8, 9, 10, 11, 17, 19, 20, 21, 23, 24, 27, 28, 29, 34, 35, 38, 39 in W.L. Moran, *Les lettres d'El Amarna* (Paris, 1987). Cf. Azzaroli (1985) 28.
 48. P.O. Skjærvø, 'The Achaemenids of the Avesta' in V.S. Curtis and S. Stewart (eds), *Birth of the Persian Empire, Volume I* (London, 2005) 77.
 49. F. Davaran, *Continuity in Iranian Identity: Resilience of a Cultural Heritage* (London, 2010) 23; cf. D. Stronach, 'Court Dress and Riding Dress at Persepolis: New Approaches to Old Questions' in J. Álvarez-Mon and M.B. Garrison (eds), *Elam and Persia* (Winona Lake, 2011) 477.
 50. Azzaroli (1985) 28.
 51. T. Bryce, *Letters of the Great Kings of the Ancient Near East* (London, 2003) 81; cf. *Les lettres d'El Amarna*, EA 15.
 52. Bryce (2003) 96–7. This was an appropriate gift for the pharaoh as Amenhotep II fancied himself an excellent horseman. The horses bred in the land of the Mittani were renowned in the Bronze Age world. A.H. Podany, *The Brotherhood of Kings: How International Relations Shaped the Ancient Near East* (New York, 2010) 178.
 53. Bryce (2003) 118.
 54. See *Ancient Records of Egypt Volume II*: 435, 501, 508, 509, 511, 518; *Volume III*: 420, 428; *Ancient Records of Assyria and Babylonia Volume I*: 236, 253, 301, 440, 441, 443, 446, 447, 451, 466, 470, 475, 605, 607, 611, 663, 691, 772, 775, 776, 812; *Volume II*: 58, 64, 148, 519, 781, 809; *Royal Correspondence of the Assyrian Empire Volume I*: 60, 61, 63, 64, 68, 69, 71, 165, 192, 241, 242, 268, 371, 372, 373, 374, 375, 376, 393, 394, 395, 466, 511, 529, 538, 545,

- 601, 637, 649, 684, 686, 729; *Volume II*: 884, 891, 973, 1009, 1017, 1122, 1159, 1450.
55. *Ancient Records of Egypt Volume II*, 509. This tribute was in response to Thutmose's victory at Megiddo c.1468 BCE. The spoils of Megiddo itself included '340 living prisoners; 83 hands; 2,041 mares; 191 foals; 6 stallions; – young –; a chariot, wrought with gold (its) poles of gold, belonging to that foe; a beautiful chariot wrought with gold belonging to the chief (of Megiddo); – 892 chariots of his wretched army; total 294 chariots'. *Ancient Records of Egypt Volume II*, 435.
 56. *Ancient Records of Assyria and Babylonia Volume I*, 440.
 57. *Ancient Records of Assyria and Babylonia Volume I*, 605.
 58. *Ancient Records of Assyria and Babylonia Volume II*, 809.
 59. *Royal Correspondence of the Assyrian Empire Volume I*, 171.
 60. J.N. Postgate, *Taxation and Conscription in the Assyrian Empire* (Rome, 1974) 7–14.
 61. Azzaroli (1985) 29.
 62. Podany (2010) 27.
 63. *Ibid.*, 76–7.
 64. A.S. Issar and M. Zohar, *Climate Change: Environment and History of the Near East* (Berlin, 2007) 39–41.
 65. C.K. Maisels, *Emergence of Civilization: From Hunting and Gathering to Agriculture, Cities and the State in the Near East* (London, 1990) 44–5.
 66. M. Van De Mieroop, *A History of the Ancient Near East ca. 3000–323 BC* (London, 2007) 8–9.
 67. Strabo, *Geography*, 16.2.10.
 68. D.M. Goodall, *A History of Horse Breeding* (London, 1977) 101–3.
 69. D.J. Wiseman, *The Alalakh Tablets* (London, 1953) 94–5 (tablets 293–331).
 70. At the time these tablets were written, Nuzi (modern Kirkuk, in Syria), was under the control of the Mitanni Empire. The Mitanni were famed horsemen. At the height of their power, their empire included the excellent horse-pasturing regions around Lake Van. For a detailed analysis of the relevant Tablets, see T. Kendall, *Warfare and Military Matters in the Nuzi Tablets* (Brandeis University, 1974) 287–305.
 71. *1 Kings* 5:6; for a detailed analysis of this passage, see G.I. Davies, 'Urwöt in *1 Kings* 5:6 (EVV.4:26) and the Assyrian Horse Lists' *Journal of Semitic Studies* 34.1 (1989) 25–38.
 72. Herodotus, *Histories*, 1.192.2–3. While the numbers are likely exaggerated in typical Herodotean style, the ratio of one stallion to 20 mares is quite feasible. A healthy breeding stallion could easily cover 20 mares in the course of a season without losing too much condition.

73. *Ancient Records of Assyria and Babylonia Volume II*, 58.
74. *Ancient Records of Assyria and Babylonia Volume I*, 812.
75. Arrian, *Anabasis*, 7.13.1.
76. Strabo, *Geography*, 11.13.7.
77. *Ibid.*, 11.14.9.
78. Urartu was located in the Lake Van region of modern Turkey and Armenia. For responses to uprisings see *Ancient Records of Assyria and Babylonia Volume I*, 605.
79. *Ancient Records of Assyria and Babylonia Volume II*, 148.
80. *Royal Correspondence of the Assyrian Empire Volume II*, 757. The land of Bit-Zamani was located at the confluence of the Tigris on the western edge of the kingdom of Nairi. The reference to an enclosure for mares suggests that this was a breeding facility.
81. *Ancient Records of Assyria and Babylonia Volume I*, 374.
82. Azzaroli (1985) 39. See Kikkuli, *L'Art de Soigner et D'Entraîner les Chevaux: Texte Hittite du Maître Écuyer Kikkuli* (Lausanne, 1998); cf. A. Salonen, *Hippologica Acadica* (Helsinki, 1955).
83. P.R.S. Moorey, 'Iran and the West. The Case of the Terracotta Persian Riders in the Achaemenid Empire', in R. Dittmann et al (eds), *Variatio Delectat. Iran und der Westen* (Munich, 2000) 476. In many ways, this Mitanni method of evaluation and selection is not so different from the purpose of breed inspections today. Stallions and mares are graded based on conformation, movement, temperament and trainability and given a class or ranking as a result. The idea is to allow only the best specimens – those closest to the breed standard – to be registered for breeding within the official studbook, thereby eliminating any animals with major undesirable features.
84. 'Yoke' refers to a team of horses for a war chariot. These chariots were pulled by three horses, not two. Thus, 15 *sila* for the team equals 5 *sila* per animal. C.J. Gadd, 'Tablets from Chagar Bazar and Tell Brak' *Iraq* (1940) 48.
85. Gadd (1940) 49.
86. *Ibid.*, 54. ANSE.NU.NA, ANSE.KUR.RA and ANSE.LA.GU either refer to different types of horses or horses used for different jobs. For a detailed discussion of these terms see Zarins (1978) 4–11.
87. Gadd (1940) 31.
88. This marks the beginning of a tradition that continued at least into Achaemenid times where the Nesaean was considered the royal horse of the Near East.
89. R.T. Hallock, *Persepolis Fortification Tablets* (Chicago, 1969) 47–9. Regular rations PF 1635–1704; Special rations PF 1757–79.
90. Travel rations PF 1780–1785 in Hallock (1969).

91. S. Isager and J.E. Skydsgaard, *Ancient Greek Agriculture: An Introduction* (New York, 1992) 86.
92. K.D. White, *Roman Farming* (Ithaca, 1970) 288.
93. J.A. Blondel et al, *The Mediterranean Region: Biological Diversity in Space and Time* (Oxford, 2010) 202.
94. Ibid.
95. Ibid., 204.
96. P. Horden and N. Purcell, *The Corrupting Sea: A Study of Mediterranean History* (Oxford, 2000) 12.
97. P. Lionello et al, 'The Mediterranean Climate: An Overview of the Main Characteristics and Issues' in P. Lionello et al (eds), *Mediterranean Climate Variability Volume 4* (Amsterdam, 2006) 2.
98. Blondel et al (2010) 6.
99. Lionello et al (2006) 2.
100. Blondel et al (2010) 10–11.
101. Ibid., 12–14.
102. Lionello et al (2006) 17.
103. J.M.C. Toynbee, *Animals in Roman Life and Art* (Ithaca, 1973) 180–1.
104. J.K. Anderson, *Ancient Greek Horsemanship* (Berkeley, 1961) 89.
105. Although Sparta is known for the dominance of the hoplite and infantry-based warfare in Sparta, the fertile plains of the Eurotas Valley provides an excellent region for equine husbandry.
106. T. Howe, *Pastoral Politics: Animals, Agriculture and Society in Ancient Greece* (Camas, 2008) 66–7.
107. These days it is common practice to muck out a stall once a day – removing all manure and urine to prevent the growth of harmful bacteria. A horse kept in a wet and dirty stall is exposed to a number of potential infections, the most virulent of which is thrush – a bacterial infection that affects the hoof.
108. Xenophon, *Art of Horsemanship*, 5.3
109. Columella, *On Agriculture*, 6.30.1–2. See also Cato, *On Agriculture*, 5.7.8: 'Litter the cattle and flocks carefully, and see that their hooves are kept clean ... If bedding runs short, gather oak leaves and use them for bedding down sheep and cattle. See that you have a large dunghill; save the manure carefully, and when you carry it out, clean it of foreign matter and break it up. Autumn is the time to haul it out.' The same advice is also applicable to equine stable management apart from the use of oak leaves as acorns are toxic to horses and might end up mixed with the leaves.
110. Varro, *On Agriculture*, 2.7.10. Likewise Columella states 'From the time when mares become pregnant they need special care and

must be fortified by generous fodder. If the grass has failed owing to the cold of winter, they should be kept under cover and not fatigued by work or journeys, and they should not be exposed to the cold nor enclosed in a narrow space lest they should cause one another to miscarry ... All that one will have to do to take care that the foals lives with its mother in a place which is both roomy and warm, so that the cold may not hurt it while it is still weak and that its mother may not crush it because its quarters are narrow'. *On Agriculture*, 6.27.10–12.

111. N. Hodgson and P.T. Bidwell, 'Auxiliary Barracks in a New Light: Recent Discoveries on Hadrian's Wall', *Britannia* 35 (2004) 121–57.

CHAPTER 5 THE MILITARY HORSE

1. Virgil, *Georgics*, 3.179–86.
2. Xenophon, *Agesilaus*, 1.25.
3. Xenophon, *The Cavalry Commander*, 3.1.
4. Xenophon, *Art of Horsemanship*, 7.14.
5. *Gyrus*: the place where horses are trained. See Virgil, *Georgics*, 3.190–3; Propertius, *Elegies*, 3.14. According to Virgil, it was the Thessalian Lapiths who created the training ring (*Georgics*, 3.115–17).
6. M. Speidel, 'Roman Cavalry Training and the Riding School of the Mauritanian Horse Guard', *Antiquités Africaines* 32 (1996) 57.
7. An excellent example of the *gyrus* has been uncovered within the walls of the Roman camp at Lambèse in Numidia. The *gyrus*, measuring 14 m in diameter, was located at the centre of the compound, near the basilica. See Y. Le Bohec, *La troisième légion Auguste* (Paris, 1989) 364. The site of Tocolosida in Morocco has a *gyrus* located outside the walls, on what must have been the *campus*. About half of the structure survives, allowing us to determine a size of approximately 30 m in diameter for the entire ring. See M. Euzennat, *Le Limes de Tingitane: La Frontière Méridionale* (Paris, 1989) 246–7 and 252–3.

The equestrian training grounds – particularly the *campus* – of the Roman forts and camps are connected to the worship of the *Campestres*: the goddesses of the parade grounds.

Altars/inscriptions set up to the *Campestres* are always found in a cavalry context; they are never associated with infantry. The equestrian *Campestres* were imported by Gallic cavalry serving in the Roman army. R.W. Davies, *Service in the Roman Army* (Edinburgh, 1989) 93–4.

R.G. Collingwood and R.P. Wright, *The Roman Inscriptions of Britain Volume I* (London, 1965). Henceforth, *RIB*.

RIB 1206: Part of an altar from Gloster Hill '[Ca]mpestr[ib]us c[oh] (ors) I'

RIB 1334: Dedication-slab from Benwell 'Matr(ibus) Tribus Campes[t]r[ib]us(us) | et Genio alae pri(mae) Hispano | rum Asturum [... | ...] Grodi[a]nae T(erentius?) | Agrippa prae(fectus) templum a so(lo) res | tituit

RIB 2121: Altar from Newstead 'Campestr(ibus) | sacrum Ael(ius) | Marcus | dec(urio) alae Aug(ustae) | Vocontio(rum) | u(otum) s(oluit) l(aetus) l(ibens) m(erito)

RIB 2135: Altar from Cramond (now lost) 'Matrib(us) Ala | terius et | Matrib(us) Cam | estribu(us) coh(ors) I | Tungr(orum) ins(tante) | VERSCAR | [c(enturione)] leg(ionis) XX V(aleriae) V(icticis)

RIB 2177: Altar from Auchencdavy 'Marti | Minervae | Campestri | bus Herc(u)l(i) | Eponae | Victoriae | M(arcus) Coccei(us) | Firmus | c(enturio) leg(ionis) II Aug(ustae)

RIB 2195: Altar from Castelhill (Antonine Wall) 'Campes | tribus et | Britanni(ae) | Q(uintus) Pisentius | Iustus pr(a)ef(ectus) | coh(ortis) IIII Gal(lorum) | u(otum) s(oluit) l(aetus) l(ibens) m(erito)

8. Arrian, *Art of Warfare*, 34.
9. Vegetius, *On Warfare*, 2.23.
10. Davies (1989) 95–6; see also A. Hyland, 'Equus': *The Horse in the Roman World* (London, 1990) 120.
11. Speidel (1996) 59.
12. A. Hyland, *Training the Roman Cavalry: From Arrian's 'Ars Tactica'* (London, 1993) 20–2. It was of the utmost importance for both horse and rider to be kept in consistent, regular training. This was especially important for the fitness of the horse. An unfit horse is not physically or mentally prepared to launch himself into hard, strenuous work. Any horse that has enjoyed a prolonged break from regular work must be gradually re-introduced to fitness training. The longer the period of rest, the slower the build up of the training regime. For an in-depth explanation of the fitness process see C. Henderson, *Getting Horses Fit* (London, 2006), especially 97–105, for a short description of the process. While Henderson's book is meant for the modern competition horse, the principles she describes are just as applicable to the ancient warhorse.

Some generals seem to have been aware of the importance of keeping their warhorses fit. For example, Eumenes developed an unusual solution to the problem while besieged in Nora: 'Seeing that the horses, unable to exercise themselves because of the rough and confined space, would become unfit for use in

mounted battle, Eumenes devised a certain strange and extraordinary exercise for them. Attaching their heads by ropes to beams or pegs and lifting them two or three double palms, he forced them to rest their weight upon their hind feet with their forefeet just clearing the ground. At once each horse, in an effort to find footing for its forefeet, began to struggle with its whole body and with its legs, all its members sharing in the exertion. At such activity sweat poured freely from the body and thus kept the animal in top condition through their excessive labours': Diodorus, *Library*, 28.43.3–4.

In a letter to L. Verus, Fronto describes the disorganized and lazy state of soldiers based in Antioch: 'The army you took over was demoralized by luxury and immorality and prolonged idleness. The soldiers at Antioch were wont to spend their time applauding actors and were most often found in the nearest tavern garden than in their ranks. Horses shaggy from neglect, but every hair plucked from their riders, a rare sight was a soldier with arm or leg hairy ... he found horses saddled with cushions, and by his orders the little pommels on them were slit open and the down plucked from the saddles of the cavalry as from geese. Few of the soldiers could vault upon their steeds, the rest scrambled clumsily up by dint of heel or knee or ham; not many could make their spears hurtle, most of them tossed them like toy lances without verve and vigour': Fronto, *Correspondence*, II.19.

13. Xenophon, *The Cavalry Commander*, 3.1.

14. *Ibid.*, 3.2.

15. *Ibid.*, 3.2–3.

16. *Ibid.*, 3.6.

17. *Ibid.*, 3.7.

18. For example, Xenophon, *Art of Horsemanship*, 8.6: 'Going downhill should first be taught on soft ground; and in the end, when the horse gets used to this, he will canter down more readily than up hill. If some fear that horses may put out their shoulders by being ridden down hill, they make take comfort when they understand that the Persians and Odrysians all ride races down hill, and yet keep their horses just as sound as the Greeks.'

Xenophon, *Anabasis*, 4.8.28: 'There were also horse races, in which the riders had to ride downhill, turn their horses on the seashore, and make their way back up the hill again towards the altar'.

19. Xenophon, *Anabasis*, 4.8.28.

20. I can personally attest to the discomfort most riders have about riding downhill especially at speed. When competing in my first one-day event, I was literally in a cold sweat about one fence on the cross-country course – a log jumped on a downhill slope.

The angle of the slope was mild and the log small, but the fear of losing control and balance was overwhelming (we did make it over fine, but I kept my horse's stride and pace unnaturally short and slow). Likewise, it took a considerable amount of time to become accustomed to cantering and galloping downhill in Mongolia. At first the feeling was akin to riding a rollercoaster – at the top of a steep incline I just wanted to close my eyes and hang on, but I slowly adjusted to the feeling and while I was never entirely comfortable with the process, became adept enough at galloping down steep hills.

21. Thucydides, *Peloponnesian War*, 5.10: 'The Athenian right put up more of a resistance. Cleon himself had no intention of standing his ground; he immediately took to flight and was overtaken and killed by a Myrcinian peltast. But his hoplites formed up in close order on a hill, where they beat back two or three attacks made on them by Clearidas, and only gave way in the end when they were surrounded by the Myrcinian and Chalcidian cavalry and the peltasts, whose weapons thrown from a distance made them break their ranks.'

Also, Xenophon, *Hellenica*, 3.4.13–14: 'There was one occasion however, when he was near Dascylium, when his cavalry in the vanguard had ridden on ahead to a hill to see what was in front; and it so happened that Pharnabazus' cavalry also, under the command of Rhathines and Bagaeus, his bastard brother, had been sent forward by Pharnabazus and rode to the top of the very same hill. They were a force about equal to the Greeks in number. When they saw each other, only about four hundred feet apart, at first both sides halted. The Greek cavalry was drawn up about four deep in a phalanx formation, and the natives were in a column with a front of not more than twelve but many more deep. Then the natives charged and when they got to close quarters every Greek who hit his man broke his spear, but the natives with their javelins of cornel wood soon killed twelve men and two horses. At this the Greek cavalry broke and fled, but Agesilaus came up in support with the hoplites, and then the natives retired, with the loss of one man.'

22. Xenophon, *The Cavalry Commander*, 3.6.
23. *Ibid.*, 3.11–13.
24. Arrian, *Ars Tactica*, 44.
25. *Ibid.*, 33–44.
26. *Ibid.*, 35.
27. *Ibid.*
28. *Ibid.*, 36.
29. For a detailed examination of the *hippika gymnasia* see Hyland (1993).
30. Virgil, *Aeneid*, 5.749–59.

31. Suetonius, *Julius Caesar*, 39.3; *Augustus*, 43.2.
32. Suetonius, *Nero*, 7.1.
33. Dio Cassius, *Roman History*, 49.2.2.
34. Suetonius, *Augustus*, 43.2.
35. The practice of schooling the horse in a *ménage* based on the principles of Xenophon re-emerged with much fervour in fifteenth-century Naples and has continued to the present day. The primary difference between Xenophon and the later practitioners of what is now termed 'Classical Horsemanship' is the final intended use of the horse. Xenophon and his Greek and Roman successors were striving to achieve the ideal Mediterranean type warhorse. From the fifteenth century on, however, what develops is a clear distinction between training the cavalry horse and the civilian mount. This is not to suggest that before the fifteenth century humans in the Mediterranean world rode only for the purpose of war and never received any form of pleasure or enjoyment from the act! Rather, that their end goal was always to produce an animal suitable for the battlefield. In opposition to this, the practitioners of Classical Horsemanship, beginning in the fifteenth century, were focused on the art and aesthetics of horse training purely for the challenge of trying to breed, train and school the perfect horse. These principles are exemplified by the Spanish Riding School in Vienna, founded in the 1700s, as well as the Real Escuela Andaluza del Arte Ecuestre in Jerez and the Escola Portuguesa d'Arte in Lisbon. On the other hand, Le Cadre Noir de Saumur, while following the principles and general purposes of Classical Horsemanship, maintained its military connection as the training school for the French cavalry.
36. Xenophon, *Art of Horsemanship*, 8.1.
37. Xenophon, *The Cavalry Commander*, 1.18.
38. Onasander, *Strategikos*, 10.6.
39. Vegetius, *On Warfare*, 1.27.
40. Today mounted hunting – whether a mock or actual blood hunt – is often used as a testing ground for potential three-day-event horses as well as point-to-point or steeplechase racers.
41. J. Barringer, *The Hunt in Ancient Greece* (Baltimore, 2001) 43; see also 204 where she concludes: 'Hunting, which can be a heroic activity, according to aristocratic thinking, not only prepares one for warfare but *is* warfare.' For the association between hunting and warfare see also Y. Hamilakis, 'The sacred geography of hunting: wild animals, social power and gender in early farming societies' *British School at Athens* 9 (2003) 239–47.
42. There was also the risk of being injured by another member of the hunting party – either accidentally or intentionally – as

- the story of Croesus' son Atys indicates. Herodotus, *Histories*, 1.36–43.
43. Xenophon, *On Hunting*, 12.7.
 44. J.M.C. Toynbee, *Animals in Roman Life and Art* (Ithaca, 1973) 173. Toynbee also describes the hunt as a 'battle between men and beasts': Ibid.
 45. Xenophon, *On Hunting*, 10.1–3.
 46. Arrian, *On Hunting*, 20.1. An example of the second method can be seen in the Diaeta of the Small Game Hunt at the villa of Casale in Piazza Amerina – one of the scenes shows a mounted hunter about to kill a fleeing hare.
 47. L. Casson explains the process of capturing wild elephants, which required the use of trained horses accustomed to the sight and smell of the elephant: 'Ptolemy II and the Hunting of African Elephants', *Transactions of the American Philological Association* 123 (1993) 250.

From the Hellenistic period on, it was essential for the war-horse to be familiar with the elephant, particularly when fighting in North Africa or the Near East. Arrian, in his description of the Hydaspes, succinctly describes the potential risk of presenting unfamiliar horses with elephants: 'He [Alexander] thought the horses would not be willing even to set foot on the other bank, as the elephant would immediately advance to attack them and scare them both by their appearance and their trumpeting, and that even before this they would not stay during the crossing on the rafts made of skins, but would jump off into the water, once frenzied by the sight of the elephants on the other side'. Arrian, *Campaigns of Alexander*, 5.10.2.

48. Hadrian, *Minor Latin Poets*, Fragment 4.
49. Perhaps Xenophon elected not to describe the ideal hunting horse because he devotes an entire chapter (1) of *The Art of Horsemanship* to the discussion of the ideal horse. Xenophon, it seems, did not distinguish between the ideal horse for war or the hunt. Indeed, he gives additional suggestions only when it comes to purchasing a flashy parade horse. For the other texts see: Arrian, *On Hunting*, 23–4; Grattius, *On Hunting*, 496–541; Nemesian, *On Hunting*, 240–398; Oppian, *On Hunting*, 1.158–367.
50. While visiting a riding school in Turkey I was offered a ride on a lovely-looking horse (who was being ridden by a child at the time). He was a very calm and obedient, well-trained horse and had no idea he was a stallion until I dismounted. The only stereotypical behaviour indicative of his gender was his quiet whickering whenever we rode past out mares who were tethered at the end of the arena.

51. See R. Fisher, 'Moody Mare?' *Horse and Rider* (May 2010) 136–8 and G. Hallowell, 'Moody Mare!' *Horse and Rider* (August 2008) 106–10.
52. Herodotus, *Histories*, 4.46.1–47.1.
53. *Ibid.*, 4.120.1.
54. *Ibid.*, 4.127.1–2.
55. Arrian, *Anabasis*, 4.17.2.
56. *Ibid.*, 4.5.3–4.
57. Plutarch, *Crassus*, 24.
58. Herodotus, *Histories*, 9.49.
59. Arrian, *Anabasis*, 5.22.5.
60. *Ibid.*, 7.4.8.
61. S. Budiansky, *The Nature of Horses: Exploring Equine Evolution, Intelligence and Behavior* (New York, 1997) 181–2.
62. When I first began to practise mounted archery the importance of a steady, reliable horse became very clear. The Parthian shot in particular brought this home. As a rider you are always taught to look where your horse is going; this is clearly not possible with a Parthian shot. I had to trust absolutely that my cantering horse would maintain his pace, continue in a straight line and not stumble or step in a gopher hole. I quickly learned that not all horses are suited to this.
63. Hyland (2003) 30.
64. Oppian, *On Hunting*, 1.311–15.
65. This might seem far-fetched, but there is quite a bit of truth in this analysis. Certain breeds such as the American Quarter Horse – which closely resembles the Nesaean in appearance – are known for their gentle, forgiving nature while at the same time they are athletic and intelligent enough for skilled horsemen to ride and compete at the top levels of equine sport. There appears to be a correlation of sorts between temperament and work ethic in horses. Draft horses like Clydesdales and Shires are among the largest and gentlest horse breeds today. For an introduction to the topic of type and temperament see J. van Lennep, 'Bred for the Job' *Horse and Rider* (December 2010) 65–74.
66. A. Azzaroli, *An Early History of Horsemanship* (Leiden, 1985) 90.
67. Xenophon, *Anabasis*, I.8.8
68. Arrian, *Anabasis of Alexander*, 3.13.3–4
69. Appian, *Syrian Wars*.
70. Plutarch, *Lucullus*, 26.5–6.
71. Xenophon, *Art of Horsemanship*, 12.8–9.
72. N. Servibc et al, 'A New Painted Sarcophagus from Çan' *Studia Troica* 11 (2001) 396–7.
73. Livy, *Histories*, 35.38.
74. Plutarch, *Crassus*, 24.1.
75. Ammianus Marcellinus, *Histories*, 16.10.8.

76. Julian, *Orations*, II.57.C.
 77. Heliodorus, *Aethiopian Story*, 9.14–15.
 78. Plutarch, *Crassus*, 24.3.
 79. *Ibid.*
 80. *Ibid.*, 25.4.
 81. *Ibid.*, 27.1.
 82. *Ibid.*, 25.9.
 83. *Ibid.*, 25.7.
 84. Historia Augusta, *Alexander Severus*, 56.5.
 85. Because the armour is so form-fitting, it was essential that the joints fit together correctly and over the correct parts of the body. If the armour is too big and gapes or too small, it will restrict movement and cause injury in the event of a fall. Many a modern-day jousting has suffered a dislocated shoulder from incorrectly fitted armour.
 86. Ammianus Marcellinus, *Histories*, 16.10.8: 'all masked, furnished with protecting breastplates and girt with iron belts, so that you might have supposed them statues polished by the hand of Praxiteles, not men.'
- Julian, *Orations*, 2.57.C: 'They ride their horses exactly like statues, and need no shield.'
87. Julian, *Orations*, I.38.C–D.
 88. Azzaroli (1985) 92.
 89. Q. Curtius, *History of Alexander*, 3.11.15.
 90. Plutarch, *Lucullus*, 28.2–3.
 91. *Ibid.*, 28.4.
 92. M. Littauer, 'Equids at Persepolis' *Antiquity* 53 (1979) 218.
 93. Arrian, *Anabasis of Alexander*, 2.11.3
 94. D. Bennett, 'The Riding Type' *Equus* 387 (2009) 31–2.
 95. *Ibid.*, 35–6. I have first-hand experience dealing with this problem. My own horse, Percy, is a 17.3hh Clydesdale cross who is truly massive. He has very good conformation and is quite athletic for his size, displaying a particular enthusiasm for jumping and galloping across country. Despite my ongoing attentiveness to proper diet (including joint supplements), protective equipment – boots and bandages when exercising; and methodical training sessions which included lots of supplying gymnastic work to build up strength and balance he still sustained a serious injury- torn suspensory ligament and bone chip – likely from playing in a muddy field. The rehabilitation progress is a long one. It began with two months of confined stall rest and controlled in-hand walks, regular icing, joint injections, ultrasounds to monitor progress and finally a return to light riding work. His size and the severity of the injury basically require at least a year's recovery before he can return to

- 'regular' work, and even at that, it is unlikely he will ever do much jumping or high-intensity work again.
96. Azzaroli (1985) 172.
 97. Xenophon, *Anabasis*, 4.5.
 98. Herodotus, *Histories*, 8.98.1. See also the *Book of Esther*, 8.14 which mentions messengers of Artaxerxes mounted on swift horses. Cf. J. Naveh, 'The Aramaic Ostraca from Tell-Arad', in Y. Aharônî, *Arad Inscriptions* (Jerusalem, 1981) 176.
 99. S.I. Rudenko, *Frozen Tombs of Siberia: the Pazyryk Burials of Iron Age Horsemen* (Berkeley, 1970) 58.
 100. Herodotus, *Histories*, 7.84.1–87.1
 101. Arrian, *Anabasis of Alexander*, 1.15.1.
 102. Julian, *Orations*, 2.57.C.
 103. Livy, *Histories*, 35.38.
 104. P.O. Skjærvø, 'The Achaemenids of the Avesta' in V.S. Curtis and S. Stewart (eds), *Birth of the Persian Empire, Volume I* (London, 2005) 52–84.
 105. Herodotus, *Histories*, 9.49.2; cf. 9.52.1: 'they suffered throughout the whole day from attacks by the Persian cavalry; and it was not until the day was drawing to a close that the horsemen finally ceased their assaults'.
 106. Xenophon, *Anabasis*, 3.3.8.
 107. Plutarch, *Crassus*, 24.5–6. See also 27.1: 'Then, as the enemy got to work, their light cavalry rode round on the flanks of the Romans and shot them with arrows.'
 108. See Spence (1995) 121–63. The best-known example of a mounted unit successfully defeating a phalanx of heavily armed infantry is Alexander's attack with the Companion Cavalry against the Theban Sacred Band at Chaeronea. Diodorus, *Library of History*, 16.86.3.
 109. Xenophon, *The Cavalry Commander*, 4.4–5.
 110. Thucydides, *Peloponnesian War*, 6.63.
 111. Tacitus, *Agricola*, 37.4.
 112. Caesar, *The Conquest of Gaul*, 6.29; see also 3.25 where Crassus makes use of mounted scouts to look for weaknesses in the fortifications of the enemy camp.
 113. Sallust, *The War with Jugurtha*, 50.1.
 114. Xenophon, *Art of Horsemanship*, 8.8.10.
 115. Xenophon, *Hellenica*, 3.4.13–14.
 116. Caesar, *African War*, 51.
 117. Livy, *Histories*, 21.46.
 118. In January 2008 I had the opportunity to ride several Greek mountain horses while on Crete. These horses were all remarkably strong for their size and capable of carrying an adult man for long rides. They navigated the terrain of the Dictys

mountains with ease, even when it was slippery or exceptionally steep. One mare – a Jorkalidiko (Cretan horse) had no problems scrambling up steep scree slopes or sliding down the other side. The same could not be said of the modern European warmbloods I rode over the same terrain.

119. Presumably the foraging or raiding horsemen would have pack animals with them to carry whatever food and other supplies were obtained.
120. Xenophon, *Hellenica*, 7.5.14. I cannot help but wonder whether Nestor made use of mounted men in his Eleian raid where:

we got and drove off together much spoil from this pastureland:

Fifty herds of oxen, as many sheep flocks, as many Drovers
of pigs, and against as many wide-ranging goat flocks,
And a hundred and fifty brown horses, mares all of them
And many with foals following underneath.

Homer, *Iliad*, 11.676–80; see also Strabo, *Geography*, 8.3.28.

121. Livy, *Histories*, 22.13.
122. Caesar, *Spanish War*, 21
123. Xenophon, *Hellenica*, 2.4.4
124. Caesar, *Conquest of Gaul*, 8.17
125. Xenophon, *Hellenica*, 5.3.1; the Olynthians later made use of the same tactics against the Spartan governor Teleutias (*Ibid.*, 5.3.2).
126. Thucydides, *Peloponnesian War*, 4.55–6.
127. *Ibid.*, 7.27
128. Sallust, *Jugurthine War*, 46.7–8.
129. Xenophon, *Art of Horsemanship*, 7.27.17–18.
130. Xenophon, *Hellenica*, 7.1.20–1. See also Caesar, *African War*, 6: ‘Accordingly, Caesar was thinking of moving camp; then suddenly a large crowd made a sally from the town and reinforced just then, as it happened, by the arrival of a force of cavalry, sent by Juba, to collect their pay. They seized the camp, which he had just left in beginning his march, and then they began to pursue the rear of his column. Observing this, the legionaries suddenly halted and the cavalry, despite their small numbers, joined battle most courageously against heavy odds. An incredible thing happened; less than thirty Gallic cavalry beat off 2,000 Moorish cavalry, and drove them into the town. Once these had been repulsed and driven within the fortifications, Caesar continued his march. As this was repeated several times – the enemy would attack, and then be driven back into the town by the cavalry – Caesar posted at the rear of the column a few cohorts of the veteran troops he had with him, and some of the

cavalry, then began to march on at an easy pace with the rest of his forces.'

131. Livy, *Histories*, 27.48.

132. Caesar, *Civil War*, 1.63. Similarly, cavalry could be used to delay the onset of battle: 'Before the fortifications of the camp were completed, the cavalry on guard reported that large reinforcements of cavalry and infantry sent by the king were approaching Utica; at the same time a great cloud of dust came into view and in a moment the head of the column was in sight. Startled by this unexpected development, Curio sent out cavalry to bear the brunt of the initial onset and hold them up, while he himself quickly withdrew the legions from the defence-works and drew them up for battle. The king's forces had been marching along without apprehension, not troubling to keep in order, and being in consequence unable to maneuver and in disarray, they were routed when our cavalry engaged, before our legions even had time to deploy and take up their positions. The royal cavalry escaped almost unharmed, since they raced along the shore and took refuge in the town, but a great many of the infantry were killed': Caesar, *Civil War*, II.26.

133. Xenophon, *Hellenica*, 5.2.41.

134. Caesar, *Civil War*, 3.93; see also Caesar, *Gallic War*, 7.13: 'Caesar ordered his Gallic cavalry out of camp and engaged Vergingetorix's horse; when the cavalry got into difficulties, he reinforced it with 400 German horsemen whom he had kept with his army from the start of this campaign. Their charge overpowered the enemy, who were put to flight and fell back with heavy loss on their main body.'

135. Livy, *Histories*, 24.15.

136. *Ibid.*, 21.29.

137. Thucydides, *Peloponnesian War*, 5.10.

138. *Ibid.*, 6.37. For the effect of this, see 6.70: 'It was the Argives who first forced the Syracusan left wing back, and then the Athenians broke through the troops in front of them. The Syracusan army was now cut in two and took to flight. The Athenians did not pursue them far. They were prevented from doing so by the numbers of still undefeated Syracusan cavalry who charged and drove back any of the hoplites whom they saw pressing the pursuit in advance of the rest.' This situation is echoed in Xenophon, *Anabasis*, 2.4: 'Also, suppose we have to fight: we have no cavalry on our side, but the enemy has a great many horsemen of outstanding ability. This means that if we win we won't be able to kill anyone, and if we lose we won't be able to save anyone.' *Anabasis*, 3.1 repeats the statement, indicating the

difficulties presented by the absence of cavalry in a country well suited to *hippotrophia* and mounted combat.

139. Diodorus, *Library of History*, 16.86.3–4.
140. Xenophon, *Hellenica*, 3.4.23–4; see also Livy, *Histories*, 28.14.
141. Xenophon, *Anabasis*, 3.3.
142. Arrian, *Campaigns of Alexander*, 3.15.5–6.
143. *Ibid.*, 3.20.1.

CHAPTER 6 THE SPORT HORSE

1. Today, equestrian events are one of the very few in which men and women compete against each other at the international level, thanks to the equalizer that is the horse. While women could ‘compete’ in ancient equestrian athletics, it was as owner of the horse(s), not as the actual driver or jockey.
2. Isocrates, *On the Team of Horses*, 16.33–4; when Alexander the Great was asked by his friends if he would compete in the running events at Olympia ‘since he was a fine runner. “Yes,” he answered, “if I have kings to run against me”.’ Plutarch, *Alexander*, 4. The equestrian events allowed royalty and aristocrats to compete without the risk of losing to a ‘commoner’.
3. Aristophanes, *Clouds*, 12–78.
4. Horses are creatures of habit and they pick up on routine quickly. For this reason a dressage rider or reiner will rarely practise a test from start to finish outside of the show ring as the horse will learn to anticipate the series of patterns; instead they will work individual movements or sections of a test independently from each other.
5. Xenophon, *Art of Horsemanship*, 8.1–11; *Cavalry Commander*, 3.1–14; Arrian, *On Warfare*, 33–44.
6. This is still the case today and is frequently seen during the veterinary inspections and international events when very fit, excited horses are trotted up to check for soundness.
7. Xenophon, *Art of Horsemanship*, 11.6.
8. I have worked with a number of off-the-track thoroughbreds (OTTB) over the years, re-training them for a second career as jumpers, eventers etc. None of these horses, even the most relaxed of them, could abide the sound of another horse coming up behind them, especially if we were working at a canter. Their response was always to speed up; when I prevented them from doing this they became very agitated.
9. Pausanias, *Description of Greece*, VI.xii.9, trans. P. Levi.
10. In 2006, the Kentucky Derby champion, Barbaro, shattered his right hind leg during the Preakness Stakes; in 2008, the filly Seven Belles collapsed on a broken leg shortly after crossing the

- finish line of the Kentucky Derby in second place; more recently, the 2008 Olympic gold medalist Hickstead collapsed at the end of a grand prix showjumping round in Verona; the cause of his death was a massive heart attack.
11. Sophocles, *Electra*, 746–56.
 12. E.R. Ely et al, 'The effect of exercise regimens on racing performance in national hunt racehorses' *Equine Veterinary Journal* 42 (2010) 627.
 13. E.R. Ely et al (2010) 627.
 14. R.J. Rose and D.L. Evans, 'Training Horses – Art or Science?' *Equine Veterinary Journal* 20 (1990) 2.
 15. C. McGowan and B. Hampson, 'Comparative Exercise Physiology' in C. McGowan et al (eds), *Animal Physiotherapy: Assessment, Treatment and Rehabilitation of Animals* (Oxford, 2005) 57–8.
 16. E.R. Ely et al (2010) 628.
 17. 'Built for Success?' *Your Horse* 324 (2009) 64–9.
 18. For example, certain horses are more prone to azoturia or 'tying up' which is the result of a build up of lactic acid in the muscles after hard work. This ailment is also called Monday Morning Syndrome because it often appears in competition horses the Monday following a weekend of competition. Azoturia can set a horse's training back significantly; thus it was/is important for trainers and grooms to be aware of high risk animals so they can ensure that appropriate warm-up and cool-down periods are given.
 19. Pausanias refers to both a chariot and a ridden race at the mythological first games: *Description of Greece*, 5.8.4: 'Meanwhile, Iolaus used to be charioteer to Heracles. So Iolaus won the chariot-race and Iasius, an Arcadian the horse race.'
 20. Pausanias, *Geography*, 5.8.8.
 21. S. Hemingway, *The Horse and Jockey From Artemision* (Berkeley, 2004) 116; Alcman Fragment 1.
 22. Pausanias, *Geography of Greece*, 8.18.8.
 23. Hemingway (2004) 117.
 24. Pausanias, *Geography of Greece*, 5.9.1–2.
 25. I. Spence, *The Cavalry of Classical Greece: A Social and Political History* (Oxford, 1995) 58–9.
 26. Homer, *Iliad*, 4.419–21.
 27. *Ibid.*, 5.106–12.
 28. *Ibid.*, 5.319–29.
 29. *Homeric Hymns*, 3.229–38.
 30. A. Teffeteller, 'The Chariot Rite at Onchestos: *Homeric Hymn to Apollo* 229–38' *Journal of Hellenic Studies* 121 (2001), pp. 160–1. The practice was not limited to the ancient world. In a scene from

- the classic novel *Black Beauty*, Beauty describes how ‘My master often drove me in double harness with my mother, because she was steady and could teach me how to go better than a strange horse’: A. Sewell, *Black Beauty* (Toronto, 2001) 12.
31. This ability is just as essential in the modern sport horse as the ancient. Jimmy Woffard, a former Olympian in the sport of eventing, states that he ‘developed a system of riding and training that allowed for the distinct possibility that I was going to make a mistake – soon – and that my horse was going to have to pitch in a help me out of whatever situation I had gotten us into’. J. Woffard, ‘Survival Skills’ *Practical Horseman* (November 2008) 20.
 32. Pausanias, *Geography of Greece*, 5.8.10.
 33. *Ibid.*, 10.7.3; Hemingway (2004) 125.
 34. S.G. Miller, *Ancient Greek Athletics* (New Haven, 2006) 12.
 35. Hemingway (2004) 130.
 36. P.G. Gonzaga, *A History of the Horse Volume I: The Iberian Horse from Ice Age to Antiquity* (London, 2004) 161–7; A. Hyland, *The Horse in the Ancient World* (Westport, 2003) 18–32; R. Longrigg, *The History of Horse Racing* (New York, 1972) 10–12.
 37. S. Remijsen, ‘Challenged by Egyptians: Greek Sport in the Third Century BC’ *The International Journal of the History of Sport* 26.2 (2009) 101–5.
 38. M. Golden, ‘Equestrian Sport in Ancient Greece: Difference, Dissent and Democracy’ *Phoenix* 51.3/4 (1997) 17.
 39. F. Meijer, *Chariot Racing in the Roman Empire* (Baltimore, 2010) 26. The excavations at Poggio Civitate have produced dozens of terracotta plaques depicting horse races and dated to the first quarter of the sixth century. For a detailed description of the plaques see M. Cool Root, ‘An Etruscan Horse Race from Poggio Civitate’ *American Journal of Archaeology* 77.2 (1973) 121–37.
 40. The earliest chariot image in Etruria dates to 530–20 and comes from the Tomba della Olimpiadi. Meijer (2010) 27.
 41. Livy, *History of Rome*, 1.35.
 42. Tacitus, *Annals*, 14.21; Athenaeus, *The Deinosophists*, 12.21.
 43. Pliny, *Natural History*, 21.5.
 44. *Ibid.*, 21.4.
 45. Livy, *History of Rome*, 24.18.
 46. E. Rawson, ‘Chariot Racing in the Roman Republic’, *Papers of the British School at Rome* 49:1–16 (1981) 6. Tertullian states that the two original colours were the Reds and the Whites: ‘For at first there were but two colours; white and red. White was sacred to Winter, for the gleaming white of the snow, red to Summer because of the sun’s redness. Afterwards as pleasure and superstition gained ground together, some dedicated the red to

- Mars, others the white to the Zephyrs, the green to Mother Earth or Spring, the blue to Sky and Sea or Autumn' (*On Spectacles*, 9.5).
47. A. Cameron, *Circus Factions: Blues and Greens at Rome and Byzantium* (Oxford, 1976) 6. Augustus granted the *equites* the right to breed horses: Dio, *Roman History*, 55.10.
 48. J.P.V.D. Balsdon, *Life and Leisure in Ancient Rome* (London, 2002) 314.
 49. CIL 6.10060 and 10058. Staff included doctors, veterinarians, trainers, drivers, grooms, buyers etc. For *medicus* ILS, 5310; *conditor* ILS, 5295, 5305, 5313; *hortatory* ILS, 5307; *succonditor* ILS, 5313; *tentor* ILS, 5313; *sutor* ILS, 5313; *cellarius* ILS, 5309, 5313.
 50. Suetonius, *Nero*, 22.
 51. Dio Roman, *History*, 61.6.1–3.
 52. *Theodosian Code*, 15.7.6.
 53. *Ibid.*, 6.4.19 – presumably this had to do with the quality of the Phrygian horses in relation to the significance given to the Praetorian games.
 54. *Ibid.*, 15.10.1.
 55. J. Humphrey, *Roman Circuses: Arenas for Chariot Racing* (Berkeley, 1986) 18–24.
 56. Balsdon (2002) 318.
 57. Martial, *Epigrams*, 6.46.
 58. Ovid, *Amores*, 3.2.
 59. CIL, 6.10047.
 60. CIL, 6.10051; H.A. Harris, *Sport in Greece and Rome* (Ithaca, 1972) 204–5.
 61. Harris (1972) 205.
 62. CIL, 6.10078.
 63. CIL, 6. 10047.
 64. CIL, 6.10048; cf Harris (1972) 199–200.
 65. CIL, 6.10050.
 66. CIL, VI 10048.
 67. CIL, VI 10052.
 68. CIL, VI 8628.
 69. Martial, *Epigrams*, 7.7.10, 12.36.12; R. Syme, 'Scorpus the Charioteer' *American Journal of Ancient History* 2 (1977) 87.
 70. Martial, *Epigrams*, 10.53 as well as 4.67, 5.25, 10.50, 10.74, 11.1.
 71. CIL, 6.10078; Harris (1972) 208.
 72. Harris (1972) 198–9.
 73. CIL, 6.10047.
 74. Martial, *Epigrams*, 3.63.
 75. CIL, 6.10053.
 76. Harris (1972) 212.

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ABBREVIATIONS

CIL Corpus Inscriptionum Latinarum
ILS Inscriptionum Latinarum Selectarum

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PLATE 1 Geometric figure of a horse. Cyprus, seventh century BCE.



PLATE 2 Exmoor ponies grazing on the moors.



PLATE 3 Przewalski stallion in Hustai National Park, Mongolia.



PLATE 4 Akhal Teke filly.



PLATE 5 Caspian stallion.

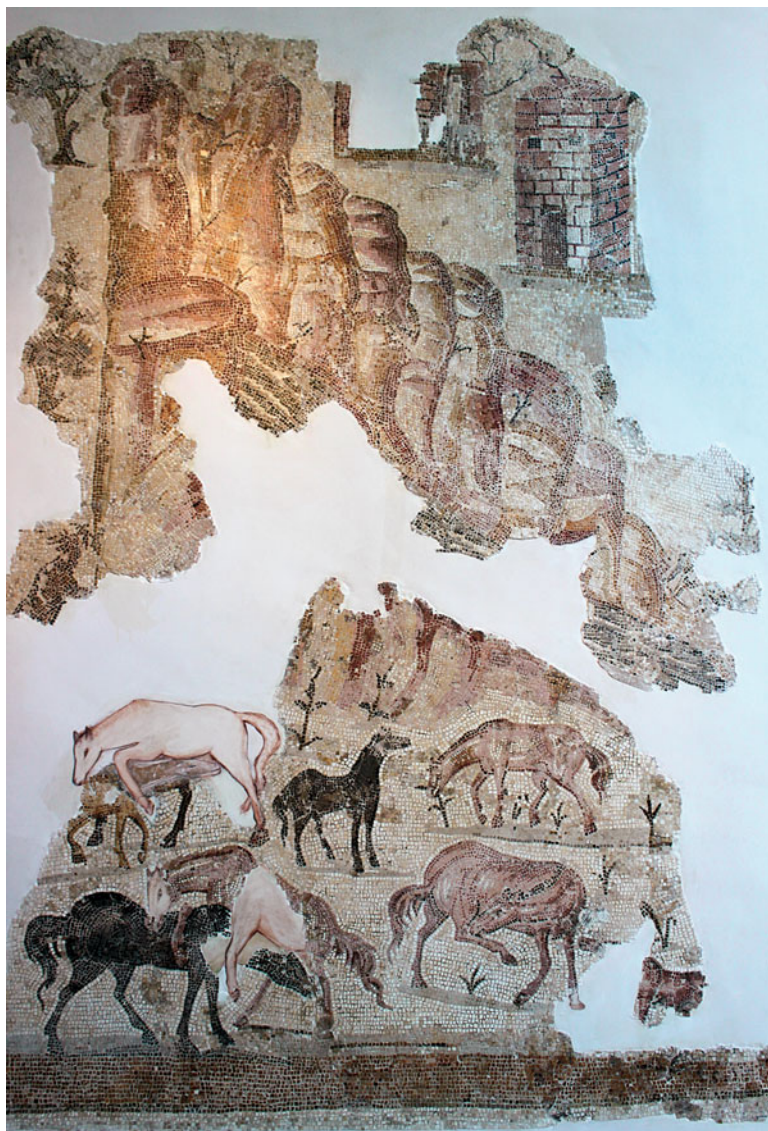


PLATE 6 Horses at pasture. From the House of Sorothus at Sousse, Tunisia, third century CE.



PLATE 7 Sasanid hunting scene, fifth–sixth century CE.



PLATE 8 Black-figure Panathenaic amphora depicting a *synoris*,
c.500–490 BCE.



PLATE 9 Artemision horse and jockey competing in a *keles* race, third century BCE.



PLATE 10 Circus factions mosaic from Sousse, third century CE, Tunisia.

'The Horse in the Ancient World is aimed at a broad audience. Its unusual strength lies in Carolyn Willekes' attractive combination of academic expertise with considerable practical experience. This has produced a work of sound scholarship which is also accessible to the general reader. It should be an invaluable companion to classical specialists and equine enthusiasts alike; it is of good quality, and fills a gap in the current literature.'

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